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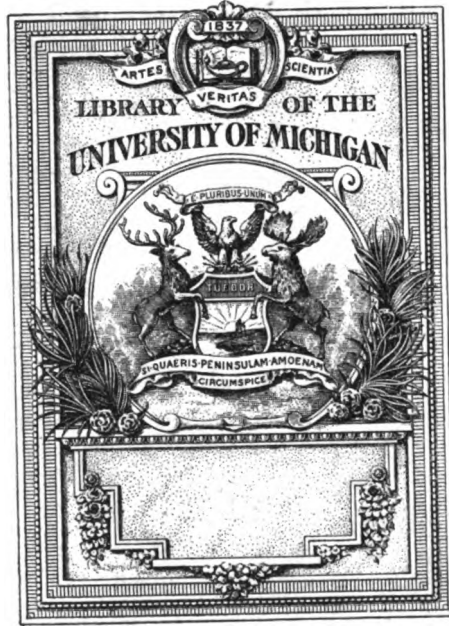
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# ANNALS OF GYNECOLOGY AND PEDIATRY

A MONTHLY REVIEW OF GYNECOLOGY, OBSTETRICS,  
ABDOMINAL SURGERY, AND THE DISEASES OF CHILDREN.

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# ANNALS OF GYNECOLOGY AND PEDIATRY

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OCTOBER, 1898.

No. 1.

## ORIGINAL COMMUNICATIONS

### CHOICE OF METHODS IN HYSTERECTOMY.\*

ERNEST W. CUSHING, M.D.

Six years ago a memorable discussion on hysterectomy took place in this society, which led rapidly to a complete change in the customary methods of performing this operation, and was the starting-point of a great increase in the frequency with which it was employed. It has seemed to me that it will not be without interest now to discuss certain points of the technique of the operation, and to compare different methods, in order to discover in how far we agree in our procedures and to what extent a consensus of opinion has been established. I therefore venture some observations based on my own experience, in the hope of eliciting the opinions of the other fellows of this society.

For the removal of the uterus we have to consider the following methods, each of which is or may be preferable in certain cases, so that it is of interest and importance to examine the indications which would cause either one or the other to be chosen in a given case.

- I. Suprapubic amputation {  $\begin{array}{l} a \text{ Extra-peritoneal} \\ b \text{ Infra-peritoneal} \end{array}$  {  $\begin{array}{l} \text{Cervix caut'd and drained.} \\ \text{" closed without cauterly.} \end{array}$

\*Read before the American Gynecological Society, Boston, 1898.

II. Total extirpation	{	Abdominal	{	Vagina open (peritoneum open or closed).
				Vagina closed, choice of catgut or silk.
				Combined operation, by vaginal and abdominal incision.
				Methods of Doyen, Martin, Richelot.
	{	Vaginal .	{	Clamps (morcellation).
				Ligatures, abdomen drained or closed.

1a. The extra-peritoneal treatment of the stump, by pins and the *serre-nœud* or elastic constrictor has been, I presume, abandoned by all of us, except under exceptional circumstances. Nevertheless, it is well to remember that it remains a precious resource as an expedient of emergency, when, by reason of shock or weakness from previous hemorrhage, it is advisable to terminate an operation immediately. In some cases also of Porro's operation, where the great vessels of the pregnant uterus are a formidable factor, or where there has been a rupture of the uterus during labor and an operation of emergency is performed, this method of treating the stump will always have certain advantages for those who are familiar with it. The rising generation, however, will have no opportunities of seeing this operation or becoming familiar with its niceties, so that practically it is to be classed with the abandoned methods.

1b. The method of treating the stump intra-peritoneally by dilating and cauterizing the cervical canal and draining it with gauze, as first introduced by Eastman and recommended by Chrobak in 1892, was used by me in 1892 in some twelve cases with the happiest results, but I have now abandoned it, and I think that it has been generally given up, because in cases where there is especial reason to fear infection from the cervical canal, it is better to remove the whole cervix.

Careful experiments have shown that the healthy cervical canal is not septic, and the preparation for hysterectomy now universally adopted includes thorough cleansing and disinfection of the whole uterine cavity, so that when the opening of the stump is closed by suture it is found safe and preferable not to cauterize it, and thereby a better union is obtained.

If, when the stump is divided, the incision is made quite conical, by traction on the body of the uterus and an oblique incision, there is very little of the cervical mucous membrane left, and there is a flap of uterine tissue in front and behind; I pass a long

curved probe through the canal from above downward and let an assistant draw down through the canal a strip of iodoform gauze wet in sublimate solution; this wipes all mucus and secretion from the mucous membrane, including any secretion, which may have descended from the uterus during the operation, and prevents any infection of the cervical stump from the vagina after the operation. Even this procedure is not necessary in most cases. Then I unite the flaps of the cervix with catgut in continuous suture, above the mucous membrane of the canal, and, returning, unite the peritoneum over the uterine tissue.

This seems the proper place to consider the indications for removing the whole of the cervix, or for leaving some of it, a point on which there is still much difference of opinion. The burden of proof seems to be on those who advocate total extirpation, for it prolongs the operation from ten minutes to half an hour, while frequently there is some blood lost before the lateral and posterior vaginal arteries are controlled. It may be added that the field of operation is brought nearer the ureters, and accidents have happened from this reason. It would seem that the opening of the vagina would increase the chance of infection, in spite of the most careful disinfection before the operation, and often when the vagina is short and the abdominal walls are thick or rigid the difficulty of operation is perceptibly increased. It is claimed that the pelvic floor is injured and the support of the intestines is diminished if the cervix is removed, but of this I have had no proof in my own experience. It is not to be denied, on the other hand, that the cervix uteri is the seat of sexual sensation to a considerable degree, and in many women it probably has a part to fulfil in the sexual orgasm, so that it is desirable to leave it intact unless there are indications for its removal.

Nevertheless, whenever hysterectomy is performed for malignant disease of any part of the uterus, the extirpation should be total; when the cervix itself is diseased, so that it is enlarged, eroded or secreting profusely an unhealthy mucus or pus, it is better to remove it; when the uterus is removed with the tubes for tubercular conditions, or for gonorrhœal disease which manifestly involves the uterine mucous membrane, so that there is presumably an infectious condition of the secretions, it is better to perform total extirpation, especially as in these cases it is often essential to provide for drainage. The same necessity for drain-

age may be a reason for total hysterectomy in cases where sub-peritoneal growth of fibroids has lifted up the peritoneum and left large raw surfaces.

If it is decided to remove the whole of the cervix, instead of amputating it, the incision is carried down at each side, keeping close to the uterus, and pinching the lateral cervical arteries, until the vagina is opened; or with a knife a median posterior incision may be made, cutting against the cervix, until the vagina is opened, or the same end can be reached by passing one blade of a pair of scissors into the cervix and cutting through it posteriorly until the posterior cul-de-sac is entered. I prefer the first method, but it is immaterial. When the whole cervix has thus been removed the operator has the choice of three methods. Either (1) the vagina may be left wide open for drainage, or (2) the peritoneum may be closed and the vaginal raw surfaces may be left open, or (3) the vagina and peritoneum may be wholly closed.

Of these alternatives I would reject the second, which has only the advantage that it permits ligatures to come away in due time, after an annoying period of suppuration. It seems to me to be one of the transition stages in the development of the operation, and to be obsolete in the days of perfected technique. If the vagina is to remain open, then a stitch on each side, using catgut, will close the little lateral vessels, and may be so placed as to cover the stumps of the uterine arteries with peritoneum and to narrow somewhat, but not too much, the opening into the vagina. It is well to split the posterior wall of the vagina for half or three-quarters of an inch and whip it with catgut, so that the gauze which is left for drainage lies at the bottom of the pelvis and not at some distance above it as is otherwise the case.

Nevertheless, in some cases where drainage is necessary, and they are less frequent now than they used to seem some years ago, I prefer to close the vaginal opening entirely, using the glass drainage tube. This is only advisable, however, when the case is in a place where I can watch it afterwards, and when I have a nurse who is thoroughly trained in the care of the glass tube.

In my opinion the method of election is that of closing the opening in the vagina with a continuous catgut suture, and afterward uniting the peritoneum with another continuous suture of catgut, so that there is an unbroken line of union from the free border of one broad ligament, across the pelvis, covering the

stumps of the arteries and the line of union of the vagina, to the free border of the other broad ligament. When this is completed there is no raw surface whatever in the pelvic cavity, there is no need of drainage, and the convalescence is astonishingly smooth and painless. It makes it easier to unite the peritoneum smoothly, burying all raw surfaces, if instead of applying mass ligatures, the broad ligaments are held by the fingers when severed, seizing and tying each artery as it is cut. Of course if it is desired to show in how small a time the uterus can be removed, the arteries will be at first secured with catch forceps and only tied after the uterus has been removed. Sometimes the difficulties of the operation are such that this is the only practicable method, but I think that on the whole it is better to tie each artery when it is cut, for the time must be spent, in any case, before the abdomen can be closed, and there is no real advantage in removing the uterus in a given number of minutes, if the whole duration of the operation is not thereby diminished. At any rate, when the vagina is cut open it should be sewed together at once, being held together meanwhile by double tenacula forceps, so that the chance of infection from this source is minimized.

It is indispensable that in the preliminary cleansing of the vagina and uterus all septic material shall have been removed or sterilized; but, although this is easy to say, it is not always accomplished satisfactorily. In foul or suppurating cases it is well, after curetting and washing out the uterus with sublimate solution, to pack the cavity with gauze, and even to sew up the cervix with a few stitches, so that afterwards when the uterus is handled it shall not discharge an infectious secretion into the vagina. This can be done by an assistant so that the operator may keep his hands clean.

This brings us to the consideration of the question whether it is not well to proceed, after cleansing the vagina and uterine cavity, to the separation of the vaginal tissues from the cervix and to the ligation of the uterine arteries from the vagina, in other words, to the method known as the combined operation. I do not know of any particular objection to this method, if the operator has to clean out the vagina himself, or if he has an assistant who is competent to liberate the cervix and tie the arteries. The fact that it was formerly in rather extensive use, while the present methods were in evolution, and that it has been abandoned by all operators

of the first rank, leads me to place this method among the transition stages in the development of hysterectomy. In cases of fibroids the finished surgeon will never have any difficulty in performing the whole operation from the abdomen. In the exceptional cases where a huge fibroid polyp has been extruded and the thick pedicle passes through the os uteri, it is better to tie and cut the pedicle, pack the uterine cavity with gauze, sew up the os and then proceed to the abdominal operation as usual.

In cases of pyosalpinx or other obscure conditions it is not well to complicate matters by performing an important part of hysterectomy from the vagina, when on opening the abdomen it may be found that the uterus with the appendages on one side may be saved, or that it may be unnecessary or inconvenient to remove the whole cervix.

In certain cases of cancer of the cervix, however, it may be a great advantage to remove all the tissue which is apparently diseased before opening the abdominal cavity, if it is thought preferable to finish the operation by *cœliotomy*.

I should not have mentioned the combined method of operating, as a method of election, before this society, since I do not think that it is practiced by any one present, were it not that it has recently been recommended by a gentleman of great experience, and I have reason to think that it is still in use among general surgeons. To facilitate the liberation of the cervix, and to prevent hemorrhage, it has also been recommended to separate the vagina from the cervix by the thermocautery, thus taking it for granted that the vagina will not be united and that time will be given for the silk ligatures to come away after weeks of suppuration. Now, although this use of the thermocautery has been highly recommended in performing vaginal hysterectomy with the aid of clamps, precisely for the reason that it prevents the edges of the vaginal wound from uniting too early and so preventing the escape of the inevitable discharges, and also for the reason that it probably diminishes the chance of cancerous infection of the incised, or rather cauterized, vaginal wall, yet in the case of hysterectomy for fibroid I would emphasize the fact that we ought to finish the operation, whenever possible, so that the wound shall be united throughout, so that on the inside every raw surface shall be covered in by peritoneum, and in the vagina there shall be a complete union without suppuration.

Although, if the peritoneum is closed, it may not be any great disadvantage to any given patient to have the vaginal wound heal by granulation, yet in a hospital every occasion for the propagation of pathogenic germs should be avoided. I often have seven or eight cases of hysterectomy in my sanitarium at once, and certainly if all the abdominal wounds were suppurating I should not only be ashamed but should think it a dangerous place to perform abdominal operations. Now what is the difference in principle whether the suppuration be in the abdominal wound or out of sight in the vagina? The air is fouled, the nurse's fingers are infected, there is every chance by bedpans, douche-apparatus, etc., for the hospital to breed sepsis. There is even greater chance that the patient get a cystitis, or that she have chills and other serious symptoms from the damming up of the secretions by premature closure of the vaginal incision.

For these reasons, and others which could readily be adduced, I maintain that the rule of all finished hysterectomy, either abdominal or vaginal, should be to close the wounds entirely, unless there is a positive indication for drainage or pressure packing.

It remains to consider the methods of Doyen and Martin, in which in the beginning of the operation the posterior vaginal fornix is opened from the abdominal side, the cervix seized and dragged upward, the broad ligaments are divided, while compressed by the fingers of assistants, each artery as it is cut being seized and tied afterwards with pressure forceps. Martin ties the broad ligaments before opening the posterior vaginal vault. Richelot's method is somewhat similar, except that he separates the bladder from the uterus first and makes the incision between the bladder and the cervix, seizing the latter and drawing it up through the wound.

These methods, in simple cases, are rapid and showy, especially in the hands of their distinguished authors, who can make any method of operating seem easy and admirable. Nevertheless, I have no hesitation in classifying them as transition stages of the method of performing hysterectomy. They are all outgrowths of the combined operation, by which part of the operation was done through the vagina; in the case of the French operators by the introduction of clamps from below, after the vagina was opened from above. They were evolved as a means of operating without the advantage of the Trendelenburg position, and for the



convenience of an operator standing or sitting between the legs of the patient. The fact that such French surgeons as Segond and Jacobs, who have taken the pains to visit this country to study our methods, have renounced all other ways of performing hysterectomy and have adopted our procedures, is in itself an indication that we have nothing to gain by trying to copy a technique based on that of Doyen.

This brings us to the consideration of the relative advantages of abdominal and of vaginal hysterectomy, which was the principal object of the visit to this country of the distinguished gentlemen just named, and was also the motive of a visit which I made to France three years ago. I have given the subject much attention since that time, and from the results of my experience have arrived at pretty definite conclusions.

It is hardly necessary to point out that in a question of this kind the personal equation of the operator counts for a good deal. Some men have learned their art and achieved their distinction by operations in the vagina, while others are better trained in abdominal than in vaginal work. The training of the operator then, his possession of all the instruments necessary for the best work in vaginal hysterectomy, his surroundings, the length of his fingers, and even the rules of the hospital in which he operates may have an influence on the choice of the operation. It is not right, but nevertheless it is a fact, that there are many hospitals in which the gynecologists are prohibited from performing operations by abdominal incision; where they may remove a fibroid by morcellation, or take out the uterus with the appendages by vaginal hysterectomy for salpingitis, but where they must transfer the case to the surgeons of the staff in case the abdominal wall is to be incised. Taking human nature as it is, we can readily foretell the result and bias in favor of certain methods of operation. Contrary to the opinion generally held it is, in my judgment, necessary to have a much greater dexterity, experience and resource to perform vaginal hysterectomy in really the best manner in difficult cases than to operate by the abdominal incision. The burden of proof therefore is rather on those who recommend the substitution of the former for the latter in cases which are susceptible of operation by either method.

The advantages claimed for the vaginal method are: less danger of hernia, absence of cicatrix in abdominal wall, less time

spent in operation and less shock. All of these advantages have become relatively far less by the improvements in the technique of the abdominal operation within the last few years, for hernia is now rare, the scar is reduced to a minimum, the difference in time is not sufficient to be usually of importance and when abdominal hysterectomy is properly done without hemorrhage there is very little or no shock.

On the other hand the abdominal operation has solid advantages which are founded on great principles of surgery and can never be shaken; for it gives greater certainty of diagnosis; greater facility in work by sight; the possibility of recognizing and overcoming unforeseen complications; greater security against wounding intestines and ureters; better control over hemorrhage.

There are certain special considerations which may further influence us in the choice of the method of removing the uterus such as the age and physical condition of the patient, the amount of fat in the abdominal wall, the caliber of the vagina, the space between the pelvic bones, the preference of the patient, or even the possibility of obtaining consent to a necessary operation, which cannot be obtained if the abdominal wall must be incised. I need not repeat what I have said above concerning the objection as to the fouling the hospital by employing the vaginal method if clamps are used, nor refer to the pain and misery which the clamps produce. If these must be used, there must be some reasons for the employment of a method which today seems crude and almost barbarous, whatever may have been its claims six or eight years ago, when abdominal hysterectomy was done by the extra-peritoneal method.

The conditions, then, which would indicate the choice of the vaginal method with the use of clamps are: first, inflammatory conditions where the presence of pus in large amounts is certain, and the weakness of the patient is such that an abdominal operation would be probably fatal; in other words where the operation is for the evacuation of pus in the pelvis, the removal of the uterus being incidental, if found to be necessary; secondly, when the patient is old or weak, and the abdominal walls are very thick, while the vagina is capacious and the uterus freely movable, so that the vaginal operation promises such a saving of time that it seems preferable. Under favorable conditions it can be done in ten minutes or even in half that time, and in some cases this is of

real importance; thirdly, in cases of cancer of the cervix, when the conditions make it undesirable to close the opening in the floor of the pelvis, and the abdominal operation seems to give danger of sepsis.

Except under such rather exceptional circumstances, if vaginal hysterectomy is to have any standing in the present state of surgery, it must be as a very finished procedure of a very finished operator, and it must have a technique which will compare with the abdominal method.

While not attempting to enter into all the points of the requisite technique, I may say that the operation should comprehend the same improvements which have made the abdominal operation so perfect. That is, the vessels should be secured with catgut ligatures, the peritoneum should be accurately brought together, covering all raw surfaces, and the vaginal wound should be united, preferably with catgut, in such a manner as to bury the stumps of the broad ligaments, and to give a linear cicatrix, which may be expected to heal by first intention. While aware that it is possible to remove the uterus without using any ligatures, and without cutting the uterine arteries, yet this does not appeal to me as a safe and surgical method, and if the appendages are to be removed also, the absence of ligatures becomes too risky to make it a practical procedure. Supposing, therefore, that the ligatures have been applied and the uterus removed, we should try to do what we would do in operating from above. That is, we unite the anterior and posterior peritoneal layers of the broad ligament on each side from the ovarian down to the uterine artery, with a continuous catgut suture. Then stitches can be passed through the vaginal walls and the peritoneum in such a way that both the peritoneal and the mucous surfaces are accurately united, while at the same time the raw surfaces at each side are included so that there will be no oozing. If drainage is thought to be desirable, a small roll of gauze may be left in the centre of the incision, instead of closing it completely, but although I always used to do this I have now largely abandoned it in clean cases.

Performed in this way, vaginal hysterectomy has a standing in favorable cases in comparison with the abdominal operation, but the admirable results obtained by the latter method leave little room for the former.

## CONSERVATIVE MANAGEMENT OF UTERINE INFLAMMATION AND DISPLACEMENTS.\*

I. A. M'SWAIN, M.D.

Two motives prompt the writer of this paper. One is, to encourage the general practitioner to increased confidence in his ability to treat the conditions implied in the title, take an inventory of his own resources, and apply them with more diligence. The other is to discourage mutilation by surgical interference of the female genital organs, at least until local and general medicinal treatment shall have failed to give relief after the most careful and patient trial.

Hence, we use the word "conservative" in its best sense—to preserve entire an organ or structure, to protect from injury, to prevent waste, loss or mutilation, etc.

For the past decade or two the literature on the subject of uterine disorders has been so much inclined to favor operative procedures, even in the simplest forms of these diseases and displacements, that a great number of general practitioners have grown rather indifferent in their management of such cases, and have come to refer them all to the gynecologist for operation. To by far the greater number of patients, especially those living in small towns and in the rural districts, this means no treatment, for either limited means or the demands of home life, preclude the possibility of the services of a specialist, or a stay in an infirmary, and even if these disabilities were removed, many women prefer to suffer than leave home for treatment, and most naturally would choose her own family physician in this delicate relationship.

We make no war with the specialist; on the contrary, we honor those who, by constant research on one line of practice, are able to invent and apply measures in advance of the common

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thought, and thus become teachers and pioneers in our art, and who by improved methods of technique, are able to operate with success on cases hitherto considered as hopeless, and overcome barriers regarded by our forefathers as insurmountable.

But while this is true, we insist that the day of the general practitioner has not passed. To the masses he still sustains the relationship of physician, surgeon, obstetrician, and gynecologist, and to whom the people composing his clientele will look as their only deliverer when in the race of life they fall by the wayside, victims of misfortune and disease.

Etiology.—Diseases and displacements of the uterus are often not purely local, but local manifestations of constitutional disorders, or of disease or derangement of proximal organs or structures.

Tubercular and syphilitic infection, rheumatic and gouty condition, general debility and anemia may be predisposing causes.

Heredity is also an important factor. Whole families of women suffer in a similar way.

The displaced womb may be only a part of a vast hernia of the pelvic viscera making a descent in various degrees through the pelvic outlet. Because of this more or less general enteroptosis, the most skillfully performed operations that look to the restoration of the uterus alone, can but result in failure.

Dilatation of the stomach, hepatic and splenic enlargements, the growth of tumors or constipation may contribute to these troubles.

The demands of modern society, dress, lacing, the uncomfortable load of skirts fastened around the waist, are a fruitful source of uterine disorders.

But by far the greater number of these cases owe their origin to negligence or ignorance during parturition or to exposure and bad treatment succeeding labors and abortions.

Non-observance by the attendant of the rules of antiseptic midwifery, failure to recognize and immediately repair injuries of the birth canal or perineum.

Another ancestor of these woes is gonorrhœa, not among prostitutes alone, but in homes where chastity and virtue apparently sits enshrined, but in an evil hour the subtle serpent, with tactics the same as those in Eden, has this time decoyed the man, who has added physical injury to perfidy by communicating to his

trusting and confiding wife the germs of a loathsome disease. Sub-involution is catalogued as a cause, but it is more often an effect. This condition per se, is often caused by a sub-acute or chronic endometritis and more or less interstitial inflammation and plastic exudation, resulting in increased weight of the organ, and as a consequence, flexion or version easily follows.

Or in the puerperal woman, too soon after delivery, gets up and assumes her household duties, thus exposing her womb to many sources of infection, which cause inflammation, and the relaxed condition of the supporting ligaments of the womb, and also of the vaginal walls and perineum, render displacements almost inevitable. A flexed womb, or one retroverted, is in no position for drainage, and by retention of secretions, provokes or perpetuates an inflammatory process.

Diagnosis.—This is of first importance and a most difficult task.

From time immemorial there has existed false notions of so-called modesty in regard to genital diseases. Most women consult a physician readily enough, and expect him to prescribe some medicine for their ailments, but decline to submit to an examination. Some doctors go on and prescribe for supposed uterine disorders, never proposing an examination. It is hard to tell which of the two are most to be censured—a woman expecting to be cured of a disease without letting her ailment be known, or a doctor proposing to treat a condition about which he knows nothing.

Examinations should be instituted with deliberation, but with a determined purpose to elucidate the facts. They should be conducted in a chaste and dignified manner, with as little embarrassment as possible, and without needless exposure of the woman's person, and with due regard to cleanliness and antiseptic precautions. The bowels and bladder should be previously evacuated, the patient clothed in a loose wrapper or gown and placed in an easy and comfortable position on a firm bed.

By an examination we should desire to ascertain the presence or absence of inflammatory disorders, the condition of the perineum, the tenacity of the vaginal walls, whether there has previously existed pelvic inflammation, and if so the nature and extent of the exudates or adhesions; the presence or absence of pregnancy, the size of the uterus, the length of the cervix, the condition of the ovaries, tubes and ligaments, whether there be any displacement

of the organs, and if so, their direction and extent. Also, whether the flexion, prolapse, or version be due in whole or in part to the presence of tumors or enlargement of any other abdominal organ, or is accompanied with prolapse or displacement of the bladder, vagina, rectum, or kidney. Also, whether there be fistulous openings, cervical rents or abrasions, ulcers, excoriations or cancer.

Methods of making examination and instruments needed are all described in any standard text-book on gynecology, and need not be discussed here. We only wish to emphasize the imperative necessity of accuracy in diagnosis. A failure in this regard will most surely result in unsatisfactory treatment.

Uterine inflammation and displacements mutually depend on each other, and very often exist together in the same patient. An inflamed sub-involuted or hyperplastic condition of the womb is liable to become prolapsed or retroverted, while a retroflexed womb, from want of drainage, thus retaining the secretions, is liable to become inflamed. A prolapsed or retroverted womb seriously interferes with proper circulation, and predisposes to congestion and inflammation.

To add to this is the law of gravitation. The intestines being freely movable in the abdominal cavity, by degrees slip down into the place made vacant by the descent of the womb. As mentioned above, other important viscera may be misplaced.

The writer has now under treatment two cases where exist prolapsus and retroversion, inguinal hernia, and a misplaced kidney. In both there is also a chronic endometritis.

In the treatment of malpositions and inflammatory processes of the uterus, two leading indications are obvious, viz.: Reduce existing inflammation and overcome, if possible, the evils resulting therefrom, and restore the womb to its normal position in the pelvic cavity. To accomplish these purposes we shall offer a few general suggestions.

Many of the apparent difficulties in the treatment of these diseases would disappear if the physician would keep in mind the fact that the same rules apply here as in the treatment of other catarrhal inflammations.

1st. The first essential is rest. The patient must be put in bed, and kept quiet, both in body and mind. Especially is this indispensable in all acute cases.

2d. Cleanliness. This implies antiseptic precautions on the part of physician and nurse, bed and surroundings. Then approach the disease much as you would any other sore—that is, cleanse it.

To do this you must get in contact with the diseased surface, and this requires dilatation of the os and cervix. If they are not sufficiently patulous and open (which they will be in most cases), proceed to anæsthetize the woman and dilate well with a steel dilator. We have no patience with the slow method of dilating with tents or bougies.

Then with a curette remove every particle of foreign substance, such as pieces of placenta, shreds of membrane, clots of blood and foul and irritating discharges. The choice of a sharp or dull curette will depend on the condition of the parts. Due care must be exercised in the use of the instrument, as like all other potent agents, the curette may produce mischief. Previous to its use, the vagina should be well irrigated and rendered aseptic.

After curettage thoroughly irrigate the uterine cavity with sterile water, into which, in proper percentage, one of the non-toxic antiseptics should be used.

Bichloride of mercury or carbolic acid should not be used, or if at all, should be greatly diluted. Other drugs, such as lysol, creoline, permanganate potash, hydrogen dioxide, in proper solutions, or the comp. tr. iodine, one ounce to the quart of water, are all admirable preparations for this purpose, and are free from danger. The irrigation may be done from a fountain syringe, or what is preferable, a clean bucket and a Columbia douche. To the rubber tubing, a uterine irrigator is easily attached. A sufficient amount of the antiseptic solution should be used to wash out thoroughly the débris, and leave a clean surface.

Not every case will require the curette, but there are few, if any cases of endometritis that thorough irrigation is not required.

Having cleansed the organ, local applications are in order. They may be astringent, antiseptic, alterative or soothing, or corrosive, depending upon the nature of the morbid process. Of these there is quite a long list to choose from. We mention only a few. Perhaps one of the best combinations is equal parts of comp. tr. iodine, glycerine and F. E. witch hazel, or carbolic acid and tr. iodine. Among the newer preparations are euophen and aristol, suspended in alboline, have a soothing and antiseptic



effect. There may be cases in which fuming nit. acid or chloride of zinc is needed, but they are few, and milder preparations should have preference.

3d. The third important step is drainage. This may be done by inserting a drainage tube or strip of gauze, carried through the internal os, and left in position. Close packing should never be done merely to secure drainage.

Another important factor in securing drainage is to straighten the canal. A womb that is verted or flexed cannot drain. Hence, if there is a malposition we must restore it, as a necessary part of the treatment of inflammatory conditions.

This is best done by tampons of prepared wool—not cotton—which should be saturated with a solution of boracic acid in glycerine and ichthyol, and inserted under the fundus, after having raised it from its abnormal position.

This about completes the dressing, and the woman being placed in bed, should not be disturbed for thirty-six or forty-eight hours, when the wool should be removed, the vagina and uterus again irrigated and the packing be replaced with fresh material. Persistence in this course will overcome the ordinary acute cases.

The more chronic cases, with a thickened and granulated endometrium, and more or less hyperplasia, will require, in addition to the above treatment the practice of massage-electricity, a repetition of curettage, and such constitutional measures as are indicated.

In chronic cases, with plastic exudation, or where the uterus is large and heavy, depleting measures are indicated.

Hot vaginal douches must be used. Tampons of wool, saturated with boro glyceride, packed in the vagina, and allowed to remain twenty-four hours, followed by hot vaginal irrigation, and a renewal of the packing day after day, will hasten resolution of exudates, reduce size of the womb, and materially assist in restoring the parts to a normal condition.

As constipation is a common attendant on these cases, it is imperative that the bowels should be evacuated daily, and one of the best laxatives is equal parts of sulphur, bi tart. potash and sulphate of magnesia, taken in sufficient quantities to maintain a soluble condition of the contents of the intestinal canal.

In misplacements, after having reduced inflammation and its sequelæ, and having produced absorption of exudates, and the

loosening up of morbid adhesions, the uterus being first placed in its normal position, may now be kept so by a well-fitting pessary.

I know this instrument is very much abused, and objections to its use are heard on every hand, yet it has its uses, and in many cases it is indispensable. It does not always cure the misplacement, neither does ventral fixation, or Alexander's operation.

We have thus hastily referred to some of the leading features in the remedial management of these cases, and have avoided details, and while much more might be said, the time will not permit. We must, however, allude to cases where repair is indispensable. The general practitioner ought to be able to perform all these operations in minor gynecology.

To sum up the contents of this imperfect and hastily written paper:

1. We insist that the more common diseases and misplacements of the womb may and ought to be managed by the general practitioner as successfully as diseases of other organs.

2. That he must assume this responsibility or a large majority of cases will be provided for, and that he should not compromise himself by referring all cases to the gynecologist until after he has intelligently examined and thoroughly treated the patient, and repaired the common injuries incident to child-birth.

3. That a correct diagnosis is all important, and no pains should be spared, no method of examination be omitted that will throw light on the true condition of the patient.

4. That he should study and treat general or constitutional disorders, which, in many cases, contribute to, or complicate the local disease.

5. Be thorough in whatever method of treatment is adopted, and patiently persist in it. Do not expect to cure a chronic uterine trouble in a week or a month. Time, patience, and perseverance will bring their reward here no less surely than in many other undertakings.

6. Be clean. Have clean and soft hands, clean instruments, clean clothes, clean habits, a clean heart and a clear head.

If these suggestions amplified and varied to meet individual cases and emergencies are faithfully carried out, you may not attain the enviable reputation of an abdominal surgeon, who counts his sections by the score, and measures ovaries by the quart, but you will have saved in its entirety many a diseased and distorted

womb, rendered it again capable of performing its proper functions, and you will have maintained a professional consciousness of duty done to this large class of sufferers.

And, if at last, your best directed efforts fail, you will command the admiration and respect of the eminent specialist into whose hands your patient may go for operative procedures.

## TWENTY YEARS OF OBSTETRIC PRACTICE.—SOME INTERESTING POINTS.

G. W. CROUCH, M.D.

IN twenty years of country practice an observing person will meet with experiences both unique and instructive. Our profession is so full, in Michigan at least, that each practitioner is chiefly confined within a radius of a few miles at most. Within these limits he will occasionally meet with cases which are not common and which are sometimes quite suggestive. Suggestion is a cunning tutor to him who does not slight its promptings.

Early in my obstetric practice I was called to the bedside of a lady who thought she would become the mother of twins. Her judgment was based on the fact that her abdomen was greatly distended. Labor began and continued as in ordinary cases. When the os was quite fully dilated I ruptured the membranes. But before I did this I informed the lady, as I always do primipara, that she might expect a gush of waters and not allow it to disturb her nerves. In this case not only her nerves but my own were disturbed. The quantity of amniotic fluid amounted to quarts. I stepped back to avoid the flood. The fluid poured off the rubber sheets in a very torrent on both sides and the foot of the bed. She exclaimed, "My God, doctor, what has happened?" It was nearly an hour before the uterus recovered from this liberation and took up its work again in this smaller field of action.

The balance of this labor was uneventful, and shortly there was born the most peculiar monster I have ever seen. I cannot even find an account of one quite like it. This fœtus was not quite anencephalic. Besides this peculiarity it presented a very rare species of spina bifida. I now have the specimen with others.

There was no cranial vault. The vault was absent from the orbital ridges and nasal tuberosity to a point corresponding to the inferior curved line of the occiput. The cerebrum entirely and the cerebellum mostly were absent. The medulla oblongata formed a rounded, elevated tuft on the basilar process of the occipital bone. The spinal processes of the vertebræ were absent down to the third dorsal. The spinal cord was exposed down to this point without any covering whatever. It was flattened. The child was alive at birth, but it was merely a living clod. It did not cry. It did not move a muscle only when made to move. It was otherwise well developed. The suggestion which comes to me from these cases, and from other cases of considerable deformity of whatever nature, is this: When you find a superabundance of amniotic fluid, expect a deformity. Arrest of normal development has been my experience in all such cases. I dare not attempt an explanation, even to my own mind, of why deformity and surplus of amniotic fluids are thus associated. May it be a result of creative force in part aborted or turned aside? In my cases of foetal monstrosity I have been able to trace on the part of the mother (not the father) an ill inheritance. In one case (case 1) the mother came from a family which, for generations, had had insanity in it. This mother is now insane. In speaking of insanity here don't understand me as noticing post-partum insanity. In my second case the lady's mother was an epileptic, having finally died in a spasm. In the third case I could only find that the patient's mother had died in a state of imbecility. I could not get a clear history of this case. In the fourth the lady's mother had died in childbirth of eclampsia, but the lady told me her mother had had spasms all through her life. She was probably an epileptic. Query: Do neurotic conditions dispose to these malformations?

In cases of thin-walled uteri, and especially in those cases where the os is so thin it is difficult during contraction to distinguish its margin from the foetal scalp, the introduction of forceps, however carefully and skillfully manipulated, is apt to lacerate more or less. Give such cases time for the head to escape the os; encourage your patient to wait; explain the troubles to her, she will either understand you or trust to your judgment. In cases of rigid os I have been successful in the use of the hot water douche and the administration of gelsemium and belladonna.

In several cases of obtuse or flattened pubic arch, I have changed the presentation from a head presentation to feet, extracting the lower extremities as I withdrew my hand. After securing all but the head a nurse would support the body while the head was being liberated. Liberate the head by manual and digital manipulation when possible; when not, carefully apply the forceps to the head. Immediate extraction of the head is necessary if the cord is compressed, as is apt to be the case.

Shaftsburg, Michigan.

## THE CARE OF CASES AFTER LABOR.

J. G. LYND'S, M.D.

I WOULD like, were it possible, to determine what is the safest and simplest plan of caring for puerperal cases, that is to say, the treatment under which the largest number of cases make a rapid and complete recovery. Perhaps some here are ready to answer this, and I trust that all here will tell us their methods and results, and if they have a method that prevents complications, such as we will consider, arising under the many unfavorable conditions we are called upon to care for in these cases, he will certainly confer a boon upon many of us by imparting to us his ways.

At the present time I know of no more frequent cause for invalidism in women than the complications of labor and the puerperal state, and were our methods of caring for these conditions anything near as perfect as they should be, I cannot think this would be the case.

If you but stop a moment and think of the number of cases consulting physicians with displacements, lacerations, subinvolved uteri and inflammatory troubles of the uterus, tubes or ovaries, together with the sympathetic or reflex disturbances caused by them which have their origin during the puerperal state, and then consider the number which prefer to go on suffering rather than submit to an examination and treatment, you must, I think, agree with me that the number is much larger than it should be. True, the number of deaths occurring during the

few weeks following labor is not great; but if you add to these the deaths occurring subsequently from some of these complications, and I consider all these conditions I have mentioned, complications when they result from labor, then add those who die from operations for the relief of some of these conditions, probably the result will somewhat surprise you. There should be, and it appears to me must be, a way to diminish this vast throng, and if it can be done it is by adopting methods different from those generally carried out at present.

Few practitioners indeed there be who attend labor cases at all, but will find some of their cases suffering from some of these complications providing they look for them. There may be some who claim such happy results, but the most of them will prove like one who attended the University clinic some time ago when we presented several cases with lacerations of the perineum. He stated he had attended several hundred confinement cases and had never had a case of laceration of the perineum. A short time after that one who had been his patient presented herself for examination with as complete a laceration as it was possible for to have and be incomplete. There was a small band of the sphincter muscle left, but a large rectocele turned out through the vulva, and the uterus was prolapsed, enlarged and retroverted. I learned from him subsequently that the only way he examined for lacerations was by introducing a finger.

Many practitioners use every care and precaution in attending their cases before and during labor, but as soon as the child and placenta are delivered turn the case over to a *nurse*, a self-trained one perhaps who has studied Dr. Chase's receipt book or some other of equal value on nursing, but is fully convinced she knows all there is to know about it and is ever ready to give the doctors advice. You have all met her I have no doubt, and it is unnecessary for me to describe her further. I shall not soon forget an experience I had with one such soon after I graduated. One who was considered by the laity "the best for such cases" nursed for me. I was very careful to give her explicit directions regarding the treatment I wished carried out and the use of soap, water and antiseptics for herself and the patient. The second day after labor I noticed her, after changing the baby and wiping up slops on the floor, without the least show of cleansing her hands, go to change the mother. I called her out, thinking it best to say

nothing before the patient, and told her my opinion of that way of carrying out my instructions. She, immediately after I had gone, however, told the patient what I had called her out for, and also told her I knew very little about such cases, having graduated but a few months before, while she had nursed and also attended cases without the aid of a doctor before I was born and had seen at least fifty cases to my one. Perhaps the worst part of all this was the truth of it, for while my theoretical knowledge was fair, my practical knowledge was very meager. It was my first case. The first case I had ever seen in fact, for before that time students did not have the opportunity at the University to see and study cases of labor as they do at present. Only a few of our class had seen a case of labor when we graduated. Now I am glad to say all have ample opportunity.

The next patient that nurse nursed for me had severe septic infection; chill, high fever and putrid discharge, which were cut short, however, by curetting and washing out the uterus. I ascertained she had been permitting the patient to pass the douche nozzle herself without any antiseptic or aseptic precautions whatever. The next and last patient she nursed for me died six or seven days after labor from sepsis. Perhaps she was not at fault here, but I preferred to take my chances without her thereafter and would not attend cases if she were going to nurse them. I then came to the conclusion, and have ever since clung to it, that these old nurses, or midwives, or whatever you choose to call them, whose only knowledge is their experience and who think these "new fangled ideas of antiseptics and such things are all nonsense, are about the worst curse that can be inflicted on a patient or a doctor, and especially a young doctor; and are a positive danger to the community in which they exist. I would much rather have a person who has never seen a parturient case who will follow instructions, for I know my results will be better.

Recently there was reported in the "Press and Circular," a case occurring in Sheffield, Eng., that illustrates the dangers of these people. A midwife attended a case that had puerperal fever. She was warned against going from there to other cases, but paid no attention to the warning, went from there directly to another case, who very promptly had fever and died. This case will probably be somewhat of a warning to others of the same class, however, as well as some of the laity, as she has been committed for manslaughter.

Within the last few weeks cases have been reported from Kalamazoo and Chicago where midwives hailing under the names of christian science or something just as bad, have resulted seriously. The prosecution of these offenders, so far as I know, has not resulted in convicting them of any crime, but nevertheless has not been without its good results; and I feel that Dr. Pierce, of Kalamazoo, and her colleagues, if she had any, deserve great credit and the thanks of the profession for carrying on the prosecution and bringing the matter before the public; for if there is any way we can bring the people to realize the dangers they are subjecting themselves to when they put themselves in the hands of such incompetent people, whether they call themselves doctors, midwives, nurses or christian scientists, it is by such procedure. It would be well if every physician would consider it his bounden duty to report and prosecute in such a way as to bring the facts before the public as much as possible, all such cases coming under their observation, not so much to procure the conviction of the offenders, although that, no doubt, would have a salutary effect, as to educate the people to the necessity of the case. Once this were accomplished, a large per cent of the class of cases we are considering would be prevented.

There are many methods in vogue for caring for patients after labor. It is not so when caring for patients in labor. Then practically all agree that asepsis, or antisepsis, if indicated, is the proper thing, and in their way attempt to carry it out. Labor once over, however, there is often an utter disregard for these precautions. Some time ago I corresponded with a number of physicians in different parts of this and adjoining states regarding the prevalent methods, and will mention some of the features most common, not to criticise them at all, but for careful consideration as to which is best. Practically all use aseptic or antiseptic measures during labor. The majority examine for lacerations. Some never find any because they never examine properly. Deep lacerations are usually repaired, but slight ones are not. Some repair immediately after labor, some one, two or three days later. Some wash out the uterus and vagina after each labor, more after instrumental or manual delivery only. It seems to be the common practice to use vaginal douches, beginning with two or three days after labor, the douche being water supposed to be sterilized or some antiseptic solution, and given in



nine out of ten cases by those who could not possibly give it aseptically.

The dressings for the vulva are by no means always sterilized. If the patient gets along until the ninth day she is allowed to sit up and is discharged, some always permitting their patients to get up on the ninth day regardless of their condition. What results are obtained it is very difficult to ascertain. Not very many die, and all who are able to get around in a couple of weeks are discharged as well, many of them, however, to become patients of gynecologists in a short time. In an experience of eight years in the gynecological clinic at the University of Michigan, during which time I have seen between fifteen hundred and two thousand cases, I am sure I am not overstating facts when I say two-thirds of the number were suffering from ailments arising during the puerperal state, three-fourths of which should have been prevented by proper care.

The method I follow as nearly as possible is, before labor, if it comes to my knowledge that the patient has a purulent or infective discharge, to cleanse the vagina thoroughly every day for some time before labor is expected. In the absence of such discharge, no treatment.

At the beginning of labor the external genitals are thoroughly cleansed and the hair clipped off around the vulva. Labor is conducted with all aseptic precautions. If there is occasion for passing the finger, hand or instrument into the uterus the vagina is first cleansed, otherwise the vagina is left undisturbed.

After labor is completed two great dangers threaten the patient, viz., hemorrhage and septic infection. Firm tonic contraction of the uterus prevents hemorrhage and to a certain degree is prophylactic against infection. It prevents the formation of large clots in the uterus or uterine sinuses which when present are likely to undergo putrefactive changes, and by preventing hemorrhage keeps the patient in the best possible condition to resist septic invasion. I believe quinine increases the resistive power of a patient to some extent and therefore give three grains two or three times daily for the first week. To keep the uterus well contracted I give ergot for the first two or three days.

After firm contraction of the uterus is secured it is well to examine the vulva and see what damage has been done there and in the vagina. In order to ascertain this the parts must be ex-

posed so they can be inspected in a good light, otherwise not only slight but deep lacerations are likely to be overlooked. Thorough coaptation of any rent should be secured, using sterilized silk for the perineum and catgut for superficial tears. If done immediately after labor, union generally takes place in 24 or 36 hours sufficiently to close the doors here against infection. Nearly all the cases of general infection I have seen have, so far as it was possible to ascertain, become infected through tears about the vulva or in the vagina.

The question of douches after labor is an important one. My former practice was to give them. It is the treatment I was taught and I tried to carry it out even though quite a number of cases had rise of temperature and other symptoms of mild infection. These cases occurred occasionally when I had well trained nurses, but more often when I had ill trained ones. I had some cases as most every physician has where the surroundings and nursing were such that to order douches would be to tempt providence. These I left alone after a slight experience and was surprised to find they recovered with fewer complications than those with the best of care with douches. Two years ago I stopped douching my patients except for cause, and since doing so have not had nearly so many cases with symptoms of infection. I have cases occasionally, yet I am willing but sorry to have to confess.

Hospital statistics of a large number of cases treated with and an equally large number without douches show a larger per cent of fever free cases among those without them. If there is any place they can be given properly, it must be in a hospital by properly trained nurses, and if harmful there, must be much more so when left in the hands of the ordinary obstetric nurse.

The external parts should be washed often with an antiseptic lotion, and aseptic pads, best and easiest made by rolling absorbent cotton in gauze and baking, applied as often as they become soiled.

The excretory organs should be kept active, the bowels moved on the day after labor and each succeeding day. An overloading of the system with effete matter increases the susceptibility to infection and may even be the cause of infection in some cases. Her diet should be light and easily digested for the first two or three days, when a general diet may be allowed. When she has recovered sufficiently to set up she should be allowed to

do so, whether it be the fifth, ninth, nineteenth or twenty-ninth day. The practice of keeping a patient on her back until the ninth day and then allowing her to be up and do as she pleases is one productive of much harm. Before the patient is discharged she should receive a careful examination and the condition of her pelvic organs ascertained. If any abnormal condition exists, the patient should be advised of it and the proper treatment suggested.

No one can prevent some of the abnormalities that are liable to occur, but most any one can correct those likely to occur by a little care at this time and save his patient both suffering and dollars. Abnormal positions of the uterus, unless they be due to destruction of the perineum or inflammatory process, are now corrected with ease. A few months later it is a very different matter. A subinvolted uterus is much more amenable to treatment now than ever again.

Inflammatory conditions can in the majority of instances be cut short or greatly modified, while if the cervix has been lacerated it is the most favorable to repair it and thereby prevent the many secondary pathological conditions that follow it. If for any reason a ruptured perineum has failed to be properly restored, the sooner this is done the better perineum will result and the more nearly the patient be restored to perfect health.

Comparatively few physicians make this examination, and yet it is a very important matter. Many patients can be saved years of suffering and invalidism and quite a number can be saved from dangerous and what proves to some to be fatal operations. The physician who has the courage and skill to rescue those sufferers from pelvic diseases by serious and dangerous operations, when other means have failed, deserves all the glory and remuneration he generally receives; but does he as rightly deserve either those or the gratitude of the patient as the one who by careful and conscientious attendance prevents the necessity of such operations?

Ann Arbor, Michigan.

## NOTES FROM THE CLINICAL LECTURES.

CHARLES GREENE CUMSTON, M.D.

*Treatment of Parametritic Abscess.—Dermoid Cyst of the Ovary.—Tuberculosis of the Coecum.—Inguinal Hernia in Children.—Bubo Following Ulcus Molle.*

CASE I.—B. H., æt. 27, unmarried, was seen for the first time in October, 1896, at which time the patient presented all the usual symptoms of an acute gonorrhœal infection of the uterus and bladder. After a few weeks she complained of much pain in the lower abdomen and the temperature was 39°.2 C.

Vaginal examination revealed a fluctuating tumor in the posterior cul-de-sac and the diagnosis of localized pelvic peritonitis and peri-uterine abscess was made. The patient entered the hospital, and on the following day (November 13, 1896), and a posterior vaginal cœliotomy was performed, which gave issue to 125 cc. of thick yellow and odorless pus.

The cavity was drained for some ten or twelve days, after which the wound was allowed to close, as all discharge had disappeared and the temperature had remained normal for several days.

I now show you this case in order to point out how well such patients do when they have been subjected to so slight an operation and I have, as you are aware, on many occasions told you how adverse I am to the more radical operations under such circumstances.

Posterior vaginal cœliotomy is in the first place a conservative and simple operation, and is indicated in both acute and chronic purulent collections in the pelvis. The incision should always be preferred and puncture with an aspiratory needle or trocar should *never* be resorted to.

The vagina is to be prepared in the same manner as for vaginal hysterectomy, and after the pus has been evacuated the cavity should always be drained. If you will take a little care there is absolutely no danger of wounding either the uterus or the uterine arteries. The vaginal incision is also indicated in certain cases of pelvic peritonitis, salpingitis, and abscess of the broad liga-

ment, but when there are several foci of suppuration, this treatment is insufficient. Vaginal cœliotomy should not be resorted to if by palpation the walls of the abscess are found thick and rigid, because after the evacuation of the pus they do not collapse and come in contact and consequently a large cavity remains which keeps up an eternal suppurative process, and which is most difficult to close.

I wish to particularly insist that in every case in which the patient is a young woman, a vaginal incision should be resorted to in order to leave the adnexa intact, and I have operated on a number of women who afterwards became pregnant and have become mothers.

And you must remember that a vaginal incision will in no manner prevent a future vaginal or abdominal hysterectomy if the condition of the patient should justify such an interference.

It is of course quite evident that suppurative processes in the pelvis demand different treatments according to their situation, size and number, and it is for this very reason that you should endeavor to make as accurate a diagnosis as possible, because no one method can be applied to each and every case. Consequently I would say that each time that you find a suppurating process which may be easily reached by the posterior vaginal cul-de-sac and which resists proper medical treatment, a free incision and free drainage is the proper method of treatment.

CASE II.—Mrs. W. B., æt. 34, mother of four healthy children, first menstruated at the age of twelve, but the menses have always been scanty, lasting not over two or three days. About two years ago, after the birth of her last child, the patient complained of severe pain in the abdomen which lasted for a few days, but since this time there has always been some pain in the left iliac region which becomes more acute during the menses.

Examination shows a bilateral laceration of the cervix; the cervix is situated far back in the vagina, the uterus being in physiological anteversion and the fundus somewhat pushed to the right. Nothing is to be felt in the right iliac fossa, but in the left a round, movable tumor, about the size of an orange, can be made out with ease.

I believe that we may make a diagnosis of ovarian cyst in this case and the neoplasm is probably a dermoid. Dermoid cysts of the ovary are congenital neoplasms and their pathogenesis is as

yet unknown, but the theory of inclusion is probably the correct one.

The prognosis of these cysts is not without some gravity, as serious complications, such as torsion of the pedicle, septic injection or secondary neoformation taking on the character of a pavement cell, epithelioma may occur. All these possible complications are quite sufficient to justify an early operation, because a tardy interference may compromise the result of the operation, either on account of the difficulty in enucleating the neoplasm or by reducing the patient's health so as to render surgical treatment dangerous.

Abdominal section is the only proper treatment, and this should be done, even if the patient be pregnant, for the pressure of these cysts may give rise to serious complications during both pregnancy and labor.

CASE III.—I wish now to refer to a patient that some of you saw with me at the commencement of this year's term and upon whom we removed the appendix. The operation was performed on October 12, 1897, and when the abdomen was opened a large juicy appendix was found, while the cœcum presented three indurated nodules that I took at that time to be tubercular products and my supposition has since been demonstrated to be correct.

The patient in question was a young man of twenty-seven years of age, of slight build, but whose family and personal history were fairly good. He gave a history of an acute attack of appendicitis about two months previously from which he recovered, but since he had been constipated, and the right iliac region was tender and palpation revealed a doughy mass in the region of the cœcum.

The patient was apparently much benefitted by the operation, and up to the latter part of December of last year he was feeling quite well and had gained in weight. Suddenly he was taken with a cough and diarrhœa and he died last week. The autopsy demonstrated the presence of a pulmonary and intestinal tuberculosis.

This was a case then, of tuberculosis of the appendix and cœcum, which anatomically is present as a thickening and induration of the intestinal walls with ulcerations of the mucosa. Microscopically we find an embryonal cell infiltration of all the tunics of the intestine and part of the mucosa.

Clinically we divide two types, viz., the *neoplastic* and *recurring inflammatory type*. In the first variety a tumor can be felt in the right iliac fossa and having a cylindrical or round shape and varying in size in different cases. The tumor may be either movable or bound down by adhesions and is quite painful when pressed on. Periodical attacks of pain are complained of and there may be either diarrhœa or constipation.

In the second type we have an induration and a diffuse doughyness in the region of the cœcum, and if not treated, stercoral or purulent fistulæ result, while a differential diagnosis with that of carcinoma is difficult to make either microscopically or macroscopically.

The treatment is entirely surgical. Total extirpation of all the diseased parts by a resection of the intestine is a severe operation and the intestinal sutures are liable to give rise to much trouble. Palliative operations, such as partial resection of the walls of the cœcum or entero-anastomosis are apt to give rise to fecal fistula.

The best treatment, I believe, is to simply perform an abdominal incision, remove the appendix and expose the cœcum to the air for a few minutes and then close the abdomen a few cases have been recorded which were most successful.

CASE IV.—This little boy, four years old, came to the Tremont Dispensary three weeks ago, for an inguinal hernia on the right side. He had worn a truss for about two years but without any result. Ten days ago I operated on him. The operation was easily executed and did not last over fifteen minutes. Two days ago I removed the skin sutures and found the incision well cicatrized.

Today I only wish to make a few remarks regarding the contra-indications to the operation, the after care and the possible complications which may arise during convalescence.

Before operating, care should be taken to inquire carefully as to the health of your little patient. A bronchitis or a cough from no matter what cause, any pulmonary trouble for that matter, are contra-indications for operating. Leaving aside the dangers from the anæsthetic in such cases, the effort caused by coughing will compromise the ultimate result of the operation. The deep sutures may give way from the strain put upon them, and a recurrence of the hernia is to be feared.

A syphilitic or scrofulous child should not be operated on until a proper treatment has built up his system. Weak or rachitic subjects are likewise to be let alone until they have been generally improved by a suitable treatment.

Coexisting malformations are a contra-indication for the radical cure of a hernia and the latter should only be operated on when symptoms of strangulation occur. Very large hernia, which are not infrequent in rachitic children should not be operated on, but this contra-indication is only temporary because as the child grows the disproportion in the size of the hernia and that of the abdominal cavity becomes less marked and then the condition may be radically cured.

Now when we have a case of multiple herniæ what should we do? Usually it is one of double hernia, and in such a case we are to be guided by the general condition of the child. I think it is better, if operation is decided upon, to do one and then later the second hernia than attempt to operate on both at the same séance.

As to multiple herniæ, properly speaking, such as double inguinal hernia, umbilical hernia, crural hernia, etc., I think that it is better judgment not to be in a hurry to surgically interfere. As the child grows up an umbilical hernia will disappear spontaneously and the subject will only keep his double inguinal hernia and when in good condition these may be treated.

Tuberculosis of the bones, such as Pott's disease, osteo-arthritis, spina ventosa, etc., is a decided contra-indication to operation. The same is true for children presenting an adenitis or a suppurating focus of any sort and in order to be successful we should only operate on those children who are exempt from infective processes.

Children support poorly rigorous antiseptics generally speaking, especially iodoform and carbolic acid, and for my part I prefer asepsis rather than antiseptics when dealing with little ones. I advise you to employ subgallate of bismuth gauze as it is non-toxic and a most efficient antiseptic.

To protect the wound from becoming soiled and thus infected, the following adhesive paste will be found of use:

<b>R.</b> Zinci oxyd.	10.0
Gelatin.	30.0
Glycerini	25.0
Aquæ	35.0

M. D. S. For external use.



At the ordinary room temperature this formula is in a solid state so when it is to be employed it is heated on a water bath to liquify it, afterwards it is applied with a brush like collodion. The fluid is freely applied around the borders of the closed incision and when the gauze is spread over the latter it adheres intimately to the skin. Another layer of the paste is then spread over the gauze and thus the incision is protected by a layer of impermeable dressing of excellent occlusive properties. Over this a few layers of absorbent cotton are applied and a spica bandage keeps them in place.

In very little children, retention of urine rarely occurs on the day of operation, but if it does a catheter must be passed. No elevation of the temperature will occur if your asepsis has been complete. Constipation is not infrequent, but one or two glycerine enemata will bring away the feses, and the temperature will come down to normal if by chance it has gone up.

A milk diet should be ordered for the first few days following the operation, and by the fifth day the child may be given its regular diet.

The dressings are to be removed on the eighth or tenth day, the sutures in the skin are taken out and another occlusive dressing applied, but this time without a spica. The child may be allowed to get out of bed by the end of the fourth week.

There is one post operative accident that will occur very often but which should give you no alarm, and that is a marked edema of the scrotum with a hydrocele of the vaginal tunic, all of which will disappear in from three to four days. The hydrocele is not caused by the manipulation of the vaginal tunic because it takes place in cases in which the hernia is not scrotal. It is probably caused by a permanent compression of the spermatic cord at the external ring, the circulation in the spermatic veins is hindered and we consequently get a serous collection. The fluid will disappear in three or four weeks.

As to post-operative complications, they are mostly infective and are due to carelessness on the part of the operator. A peritonitis is inexcusable. Broncho-pneumonia, which is usually fatal, is rarely met with if you will take the precautions I have already mentioned, when you examine the child before operating. When due to the anæsthetic it makes itself manifest on the second or third day, rarely before.

A septic inflammation of the stump of the mesentery will occur if your ligatures are not perfectly aseptic, its symptoms being those of an ordinary localized peritonitis.

A collection of blood will sometimes occur after a difficult and extensive dissection of the sac, and the only means we have to prevent this complication is to drain. And lastly an *aseptic* suppurative process may occur when the deep sutures are tied too tightly. This process is, as you know, due to the thermogenic products absorbed from an aseptic necrobiosis of the tissues; the soft tissues included in the sutures become necrosed partially and are eliminated in shreds, similar to those seen in anthrax.

For prudence sake I think it best to have the child wear a support for a year or so after the operation, but the herniæ met with in childhood are recent, the tissues are in a healthy condition, both conditions being particularly favorable for a rapid and complete repair.

A truss will sometimes alone be enough to bring about a cure of a hernia when the canal is nearly normal and the rings moderately dilated, but a radical cure can only be obtained by operation in cases in which the abdominal wall is relaxed and when the inguinal canal is in a state of malformation, and I would add that the best time for operating is between the second and fourth years.

CASE V.—This patient has been under treatment for several chancroids of the labia and a suppurating bubo in the right inguinal region. The other day the bubo was incised, curetted and packed with subgallate of bismuth gauze, and on changing the dressings today we find the wound in good condition.

Inguinal adenitis follows an *ulcus molle* in over fifty per cent of cases and is usually a *poly-adenitis*. The bubo may become infected by the specific bacillus of chancroid after it is opened or even before suppuration occurs.

Before suppuration has taken place a bubo should be treated by rest, blisters and compression.

When suppuration is established we have several operations which are to be selected according to the condition of the adenitis. When only one gland is the seat of the trouble, simple incision with drainage is sufficient, but when there are several infected glands incision curettement and drainage are necessary. If after incision digital exploration reveals a large poly-adenitis, the extirpation of the mass must be resorted to.

871 Beacon Street, Boston, Mass.

## SOCIETY REPORTS.

## AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

DOES THE GENERAL PRACTITIONER ACCORD THAT CONFIDENCE TO THE SURGICAL TREATMENT OF UTERINE FIBROIDS WHICH OUR PRESENT SUCCESS JUSTIFIES?\*

DR. VANDERVEER.

It has been well said that "the first step in presenting a subject is to define exactly and exhaustively the thing to be discussed."

My paper refers to the usual classification of fibroids, sub-mucous, interstitial, or sub-peritoneal, which, from location, produce obstruction of the bowels, irritation of the bladder, exhaustive hemorrhages and pain, growing rapidly, irrespective of patient's age, and become a menace to life or a source of invalidism.

Many practitioners have learned that to encourage these patients to hold out until the menopause has passed, when the tumor will disappear, is giving hope to a very small percentage. Statistics demonstrate a great tendency for these fibroids to become much more irritable, and to exhaust the strength of the patient at the climacteric. Aside from controlling the hemorrhage, in a certain number of cases, and a possible diminution in size of the tumor, electricity is not a positive curative agent.

The intelligent practitioner will come to the surgeon asking, "What is your successful method of treatment?" Is it by the use of the clamp, extra-peritoneal treatment of the pedicle, by the vaginal route, in all cases, or do you prefer supra-vaginal hysterectomy, leaving in the cervix? Do you operate by Dr. J. F. Baldwin's method, or do you know of cases where this operation was done in which silk has escaped, sometimes producing abdominal sinuses?

"Do you find Doyen's method, as improved and used by Dr. Allen, of Cleveland, satisfactory; is Dr. Le Bec's operation most suited to the removal of large fibroids, or do you find Dr. Richelot's abdominal hysterectomy preferable to all others, etc.?"

\*Abstract of paper read at Pittsburg, Pa., September 20, 1898.

"How successful has been ligation of uterine arteries, also of ovarian vessels in these cases? What about curetting of the cavity of the uterus, lifting up the fibroid and introducing a pessary? Does the operation of salpingo-oöphorectomy receive the endorsement of the operating surgeon of to-day. Do sub-peritoneal fibroids require removal of the entire uterus? What about the operation of myomectomy, and what has been your success with Dr. Baer's method?"

These, and many other questions does he ask; then, possibly, if time permits, you touch upon the subject of medication in the treatment of uterine fibroids. He inquires: "Have you seen good result from intra-uterine injections of sterilized glycerine, or from the administration of thyroid extract? What about the use of ergot, diet, change of climate and occupation for his patient?" In fact, much time can be pleasantly spent in discussing the particular case in hand, and yet one cannot but admit that the treatment of uterine fibroids, as studied from the practitioner's standpoint, is not yet thoroughly settled. You may say to him that "no drug has been discovered that has had any influence upon the growth of uterine fibroids,"—perhaps a sweeping assertion on your part, yet sustained by recent text-books.

He has brought patients through to the menopause, by the giving of ergot, but they are exceptional cases, more often this treatment being carried out to the extent that no chance is left for any operation.

The subject of surgical interference is the important factor, and as operating surgeons we must bring together, in a happier combination, the different methods that are now being made use of by a great variety of successful operators. The operator must explain to the general practitioner that upon opening the peritoneal cavity he may find the case one in which the combined vaginal route or pan hysterectomy is the proper way. You can say to him most truthfully, "we must be prepared to do any one of the operations spoken of." There are complications in all cases, and I would emphasize, in your conversation with the intelligent family physician, that if his patient has suffered much pain, and the growth increased rapidly, we are almost sure to find diseased ovaries, but, on the other hand, when we consider the nerve symptoms that have been brought about by the artificial menopause, we must always consider the advisability of leaving behind healthy uterine adnexa.

I am bound to state, as the result of conversation with the patient's physician, that this reply will be emphasized, "The great majority of uterine fibroids do demand an early and prompt operation."

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SURGICAL TREATMENT OF MORBID CONDITIONS INVOLVING THE BROAD  
LIGAMENTS.\*

A. P. CLARKE, M.D.

THE author says that in operating on cysts or on morbid growths developing between the broad ligaments, it becomes necessary in order to avoid injuring the ureter and some of the more important blood vessels, to exercise as much care as is required in cases of disease demanding hysterectomy.

In those cases in which numerous adhesions have occurred as the result of inflammatory or of other morbid processes, a loop of intestine may be found entangled in the mass. Such cases always necessitate the employment of special precaution lest in the course of extensive manipulation to free the parts, undue violence result to important structures involved.

In those cases in which the cysts or growths are only partially intra-ligamentous, removal by enucleation can be effected more rapidly. The cavity or bed of the tumor should be obliterated by suturing its sides together; in cases of such a character the author further remarks that it will rarely be necessary to ligate previously the ovarian or other large arteries.

Drainage as far as possible should be dispensed with. Reliance should be placed on the scrupulous care taken in the management of the toilet of the peritoneum and on the aseptic condition of all materials and instruments employed in the operation. Mention is made of the occurrence of hematoma and hematocele from rupture of the sac of tubal pregnancy within the structure of the broad ligament and of the necessity of prompt surgical interference. When suppurative processes appear or a lithopædion or other abnormal formation takes place within the broad ligaments, the employment of surgical measures should not be deferred.

Varicocele of the broad ligaments is also mentioned. Excision of the parts, including portions of the ligaments with the tube and ovary, furnishes in some cases the only safe means for a permanent cure. Sarcomatous and other malignant neoplasms,

\*Abstract of paper read at Pittsburg, Pa., September 20, 1898.

involving to any great extent the ligamentous structures, are rarely overcome by extirpation, excision, or enucleation. Myomatous and fibro-myomatous formations originating in those parts demand the early adoption of surgical procedures, on account of the danger of such growths assuming a malignant transformation.

Cambridge, Mass.

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OPERATIVE TECHNIQUE FOR THE INTRA-LIGAMENTOUS OVARIAN CYSTOMA.\*

D. TOD GILLIAM, M.D.

PRIOR to the enucleation method of Miner, the surgical treatment of these cases was crude and incomplete. Miner's method marked a new epoch and will ever remain the foundation principle of their surgical treatment. It was, however, attended with so much difficulty and danger as to greatly abridge its usefulness. The chief danger was from hemorrhage, which was oftentimes fearful and not infrequently fatal. Other, by no means unimportant, dangers came from injuries to important pelvic structures while conducting a hurried and blind dissection. There was a crying need for something better. The essential factors of the ideal operation are: 1, tapping, to reduce the volume of the cyst, and to open the way for hemostasis and enucleation; 2, ligating the supply vessels, to control hemorrhage; 3, enucleation along the line of cleavage, to insure easy, rapid and safe dissection. This technique was foreshadowed in a case which I operated on the 30th of October, 1894. It was here that I discovered the line of cleavage for the intra-ligamentous cyst and reported it to the Columbus Academy of Medicine. In 1896, Kelly announced the line of cleavage for the intra-ligamentous uterine fibroid. In 1897, Hall was the first to combine all the essential factors of the ideal operation. Hall's method, however, included hysterectomy. My method, without hysterectomy, is as follows: First tap the cyst and drain off its contents, then ligate the ovarian artery near the pelvic wall and place a clamp between the cyst wall and the uterus. Select a point as low down on the anterior wall as practicable, and with a pair of forceps lift up the capsule and make a small opening. Insinuate a finger and sweep it around, separating the cyst from its matrix at the base. Now turn the finger upward and work in the direction of least resist-

\*Abstract of paper read at Pittsburg, Pa., September 20, 1898.

ance, splitting the capsule as you go. This will indicate the line of cleavage, and will generally run diagonally upward and outward across the face of the tumor. Now introduce the hand and strip off the capsule from below upward, following the line of cleavage. Enlarge the opening by making an incision parallel to the capsular margin. Seize the cyst and roll it out of its bed, stripping it from the posterior capsular wall. Trim and suture as in other cases.

## EDITORIAL.

### THE TREATMENT OF FIBROID TUMORS DURING PREGNANCY AND LABOR.

THE great difference in the conditions which may be present in cases of fibroid tumors complicating pregnancy and labor explains the great number of operative interferences which have been suggested under these circumstances. Nearly all the obstetrical manœuvres may find their indication in such instances, and the same may be said of the various surgical methods usually employed in the treatment of fibroid tumors of the uterus.

We would only mention, without criticising any particular method, obstetrical operations which have in view the treatment of the pregnancy. These operations are as follows: First, artificial miscarriage; second, premature artificial delivery; third, craniotomy and cranioclasia; and lastly, Cesarean operation. They all have for an end the emptying of the uterus without attacking the fibroid tumor, and they may be termed palliative operations.

As to surgical interference, those which alone are of interest here are those having a double end in view, viz.: the removal of the foetus either alive or dead, and extirpation of the fibroid. These may be termed the radical and curative operations, and they may be arranged in two large classes, according to whether the tumor which complicates the pregnancy is or is not removable by the vagina.

In the first instance, in the case of a sub-mucous pedunculated fibroid, or a fibroid of the cervix which projects into the vagina, ablation, enucleation of the fibroid through the vagina may be attempted. Total vaginal hysterectomy is rarely indicated; a fibroid whose size will not prevent the uterus from passing down through the vagina should not be a sufficient indication to justify an extirpation of the organ during pregnancy.

In the second case in which a fibroid cannot be removed by the vaginal route, we should first attempt to enucleate the tumor. When this interference is also impossible, abdominal section then becomes indicated. According to the case this should consist in either a simple ablation or enucleation of the fibroid, but at the same time allowing the pregnancy to continue; or if the foetus is either dead or inviable, a supra-vaginal amputation of the uterus, or a total hysterectomy, should be performed. If, on the contrary, the child is living or viable, and the Cesarean operation fail, Porro operation or total hysterectomy is indicated, and lastly, the Cesarean operation can simply be completed by the removal of the ovaries. Every time that during pregnancy the diagnosis of a pedunculated sub-mucous fibroid, or of a cervical fibroid easily accessible by the vagina, is made, although this fibroid may not appear to be an obstacle to the extraction of the child, the surgeon should proceed to remove it and not wait until labor has begun, because this might be the means of causing infection to take place. It must be remembered that pedunculated fibroids have a tendency to undergo gangrene during the puerperal state.

The enucleation of sub-mucous cervical fibroids which are not pedunculated, is a very delicate operation, and the indications for operating are not very clear.

It is evident that enucleation should be performed in every case where the fibroid by its size or its consistency appears to be an obstacle to labor, but it may be added that it is well known that the size and the consistency of the tumor may become changed during the pregnancy, and especially during labor. At any rate, this type of fibroid should not be enucleated when there is any danger of interrupting pregnancy; that is to say, when they can only be reached with difficulty; it should also be recalled to mind that enucleation is accompanied by a considerable hemorrhage, especially when we are dealing with a pregnant uterus, and that the hemorrhage may be the means of interrupting pregnancy.



Let us now examine the surgical interference which these tumors may give rise to in cases where they can not be removed through the vagina. We will not speak at this place of the small, multiple fibroid tumors of the corpus uteri that are so often felt when a gravid uterus is palpated, because they are not a cause of dystocia. Their only danger is that they occasionally give rise to stubborn hemorrhage after confinement.

We will speak more especially of the large, sub-serous interstitial fibroids of the corpus uteri, when the fibroid can be reached with the finger in the pelvis, or is found located at the superior strait. Its eradication should be in the first place attempted; generally in such cases we are dealing with the fibroid of the cervix, very rarely a pedunculated fibroid of the corpus.

The displacement should not be attempted during the first half of pregnancy, because it will usually be unsuccessful, and will expose the patient to miscarriage. It is usually better to wait until the seventh month, at which time the entire uterus and its lower segment have undergone a marked elevation in the pelvis. Very often at this time nature will interfere, and the tumor recedes from the superior strait, and the foetal head takes its place.

In order to perform displacement of the tumor, the bladder and rectum must in the first place be completely emptied, and the patient is placed in the lateral or genu-lateral position. The hand is then introduced into the vagina, or, if necessary, into the rectum, and the tumor is slowly pushed back by a progressive and continued pressure of the fingers above the promontory and towards the side where the principal neoplastic mass has been found to be situated. Anæsthesia may perhaps be necessary for this manœuvre. The ablation of a sub-serous myoma seated on the cervix of a pregnant uterus may be necessary on account of the intensity of the symptoms that it will give rise to. These symptoms are rarely observed, excepting in the cases of very large fibroids which fill up all the space not occupied by the pregnant uterus, and it must be remembered that besides this they have a tendency to take on in themselves a rapid growth.

Myomectomy has been quite frequently employed in the last ten years. Olshausen has collected fifty-one cases; the larger number of which being twenty-eight cases, were pedunculated fibromata, and a simple ablation was all that was necessary; in the

other cases, numbering in all twenty-three, the fibroids were sessile, and enucleation was necessary for their removal. From the statistics compiled by Olshausen, it appears that of the twenty-eight cases treated by simple ablation since 1885, five terminated in death: once from hemorrhage from the pedicle; once from paralysis of the heart on the second day; once on account of cardiac lesions, and twice from either septicæmia or peritonitis. Of the remaining twenty-three cases, with the exception of a woman operated on during labor, three were followed by miscarriage. Of the twenty-three cases treated by enucleation, only one ended in death, and that was from nephritis. With the exception of another patient operated on during labor, eight of the twenty-two remaining cases were followed by miscarriage, and in one a premature labor.

To sum up, myomectomy has given very favorable results in the last ten years, especially if these results are compared with preceding periods of time, such as eight deaths out of twenty-eight cases cited by Wurfert, and seven deaths out of thirty-one cases reported by Lange. As is seen, it appears from the statistics of Olshausen that enucleation appears more disposed to produce miscarriage than a simple ablation of a fibroid. Now the question arises, at what time of the pregnancy is one or the other of these operations indicated? We would say in agreement with Olshausen, that if the fibroid does not set up any serious disorders, necessitating immediate action, it is preferable to await the period when pregnancy has arrived at the term. Up to that time, as we have already stated, a fibroid, although there may be some risk of its increasing in size, may on the other hand become changed in its shape and consistency, and leave ample space for the passage of the child; on the other hand, at the end of the pregnancy, enucleation is more easily performed on account of the softness of the surrounding tissues, and, lastly, there are more chances of having a living child in case labor should be provoked by the interference. When, on the contrary, the fibroid, on account of the rapidity of its growth, has produced a series of disorders more or less intense or serious in their nature, ablation of the growth, or enucleation, should be performed very early; thus the surgeon should interfere in cases of peritonitis, whether they be due to a gangrene of the neoplasm, or to a torsion of the pedicle, as well as in case there is a nephritis, or an intercurrent pulmonary cardiac lesion.

The operation which has been performed the most frequently with the greatest promise of its success in the last few years, is supra-vaginal amputation of the uterus containing the fœtus. Olshausen has been able to collect forty-five cases since 1885; eight of which resulted in death, one from pneumonia, one from ileus, six from peritonitis or septicæmia.

It is evident that this operation can only be employed if the child is dead or not viable.

Total abdominal hysterectomy performed on a pregnant uterus complicated with fibroids has only been performed in a very small number of cases, and the above-mentioned writer was only able to collect nine in the literature, three of which were followed by death, which was due to collapse; another to a wound of the bladder, while three were from ileus. This number is still too small for any conclusions to be made regarding the value of the operation.

In a case of pregnancy complicated with a large fibroid which will render labor impossible, and the child is living; and, on the other hand, extirpation of the fibroid appears impossible, either by the vaginal or abdominal route, it is necessary in all events to have resource to the Cesarean section in order to at least save the child.

Of the classical Cesarean operation we will say nothing, because we are limiting ourselves to the discussion of those surgical interferences which are directed entirely towards the removal of the fibroid. Often the surgeon may, and should as much as possible, be discontented with the Cesarean section alone, and should complete this operation either by a supra-vaginal amputation or by a total abdominal hysterectomy; or, lastly, by the removal of the ovaries, when it may be surmised that by this latter interference we may hope to obtain an ulterior regression in the size of the growth.

According to the statistics, Porro's operation, which formerly gave a mortality of about one hundred per cent, at the present day gives far better results, and the mortality has been recently estimated at twenty per cent by Apfelstedt and thirty per cent by Kirchheimer.

Olshausen mentions no case in which Cesarean operation was followed by a total abdominal hysterectomy, and he also states that it may be performed just as well as Porro's amputation.

When is the Cesarean operation and its complementary operations necessary? In answer to this, it may be stated that, generally speaking, in every case when the child is living, and the surgeon sees that the presence of a fibroid will render delivery by the natural route impossible, or when the woman presents serious disturbances which place her life in danger, this interference should be resorted to. Unfortunately, in a given case these indications are difficult to see. Who can affirm that, towards the end of pregnancy, or at the time labor begins, the fibroid which appeared irreducible will not finally move up into the pelvis and allow the foetal head to pass? On the other hand, at what moment can we be sure that the mother is running a greater danger than that to which the Cesarean operation exposes her? And lastly, should we not often ask ourselves if the death of the foetus by cranioclasia and embryotomy will not result in the delivery through the natural passages? All these questions are often most perplexing, but there are other indications that should be considered, and these are the operative methods to be chosen.

Now, when the child has been removed from the uterus by Cesarean section, how should the fibroid which still remains be treated? When this fibroid is pedunculated, or can be easily enucleated, or if the surgeon is dealing with a young woman, we think ablation or enucleation of the neoplasm is the proper method to pursue. On the other hand, if the woman is of a certain age near to the menopause, the condition of affairs may be left alone with the hope that nature will produce an atrophy of the tumor. When the fibroid occupies the fundus of the uterus, and if inucleation appears impossible, and the cervix uteri is healthy, Porro's operation, or supra-vaginal amputation of the uterus, may be quite sufficient. On the contrary, when the fibroid is intimately united with the cervix, and, on the other hand, if the lower uterine segment appears to be infected, total abdominal hysterectomy should be resorted to because it is quite as easy of execution, and does not offer any greater danger than the supra-vaginal method.

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WE believe it is generally understood by our readers that we do not stand as sponsors for the opinions of our contributors. Neither on the other hand do we often feel it incumbent upon us to refute theories or statements made by our contributors. For we believe that the acceptance or rejection of the ideas presented

may be safely left to the good common sense of our readers. The article on Membranous Croup, published in this issue is so far from our ideas, however, that we cannot forbear saying a few words on the subject. We trust you have all been interested in the series of articles on diphtheria, which we have presented during the past two years. With the exception of this one they have all been in line with modern scientific investigation. We have published this because having been presented at a State Medical Society Meeting, it is presumable that its ideas are accepted by many medical men. From these statements it will be apparent that we do not agree with the author's ideas that membranous croup and diphtheria are distinct and separate diseases. • The subject does not need discussion. When such men as Rotch, Holt, Starr, Jacobi, Wells and Taylor, declare the great rarity of a disease which may properly be called membranous croup as distinct from diphtheria, we lesser lights may well agree. These are not "bacteriologists," nor mere "general practitioners," but men who have made a special study of children's diseases with the assistance of all the modern learning and skill. And with them agree, so far as we know, all pediatricists of any prominence. We do not believe, therefore, that it is safe to disregard all precautions against contagion in the care of a case of obstructive laryngitis.

If, then, membranous croup and laryngeal diphtheria are one, what shall we say of the author's line of treatment? We ask our readers to compare it with that presented by Dr. Stevens in his article printed in our June and July issues. Whoever treats diphtheria nowadays without antitoxin, is running an unwarrantable risk. Especially is this true of the laryngeal type which was formerly so universally fatal. It is true that four and five years ago intubation was saving a case here and there. But now when we combat the disease with antitoxin and relieve the dyspnoea by a tube, many a young life is saved. Do not neglect the antitoxin! "No where else are the beneficial effects from antitoxin so evident and so striking," says Holt.

A word with regard to intubation; it is not an easy operation for a novice. It is a capital operation, for all it is so simple. Practice is necessary to avoid the needless sacrifice of a baby's life. True, one may do it in an emergency, if the instruments are at hand just

as one may operate for strangulated hernia. But as a rule the successful operator is the one who has done the operation the most times. Practice on the cadaver is a poor substitute for hospital experience in this line, but it is valuable and should be sought by every one who desires to be expert in this line and so give his patients the best chance for life.

What the author says about removing the tube is quite true. Few operations are so difficult. Fastening the thread to the cheek has been abandoned because it so irritates the epiglottis and the child is so apt to get hold of it and pull out the tube. Perhaps the author's suggestion of allowing it to be swallowed may be a useful one. It would then at least be less irritating, out of the way and still within reach. We trust we shall not have seemed to be harsh in this criticism of a paper which has many good points. There is nothing which will relieve this condition but antitoxin and intubation or tracheotomy. But the condition is a very serious one and demands the treatment which thousands of physicians have now proven to be successful.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### MALNUTRITION IN INFANTS.\*

FRANK PARSONS NORBURY, M.D.,

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Feeble-Minded Children.*

THE study of child-life has ever been the favorite theme of motherhood, but the rational study of the natural history of child-life from the standpoint of the physical sciences is comparatively new. The same may be said of the rational study of the child in disease, for while children have been born in the world, have been actors in successive generations in the panorama of disease, yet it has been but a few years since the diseases of children have been dignified with the importance to give to them a distinct field in the great realm of clinical medicine.

The infant has been discovered to be not a little man, nor even a little child, but a distinct human entity, having its own physiology, its own psychology and largely its own pathology. In fact, when we enter upon the study of infancy from the standpoint of infancy, we find revealed a little world of medicine all by itself. We find problems presented which demand from us precise and analytical study. The problem which is the problem *par excellence* of an infant's life is that of nutrition. This is of paramount importance as the days of infancy are dependent upon the ability of the infant to receive and assimilate nourishment.

\*Read before the Illinois State Medical Society at Galesburg, Ill., May 18, 1898.

Simply because the child is a feeble weakling at birth, without sufficient potential reserve to warrant its continued existence, is no excuse for its receiving scant or no attention whatever. Who knows but in that frail frame reposes a mighty Stephens, a Walter Scott or a Ben Jonson, all of whom were regarded when infants as hardly worth the breath of life which fanned their precarious existence? Nutrition, then, is the problem of infancy. In the normal infant, blessed with a mother who fulfills the demands of motherhood, there is not much concern regarding the present or future nourishment of the child. But given an infant where heredity, intercurrent disease or other circumstances compel the little one to fight for its life against heavy odds, then it is that science comes to the rescue of such an unfortunate one and enables a more determined struggle to be waged. Nutrition is a physiologic-chemic process, which has for its object the supply of materials necessary to maintain the human economy in a state of health and to provide for its growth and development. In an infant body metabolism is more active than in an adult. Not only must the nitrogen equilibrium and the carbon equilibrium be maintained, but a sufficient excess of food must be properly converted into its end products and distributed to the tissues and stored in the body to act as a reserve supply of nourishment. Growth and development draw upon this continued and reserve supply for the purpose of replacing tissue, yielding energy and promoting growth of the inactive structures of the body. Disturbance of the harmony existing in the normal operation of the chemistry of nutrition is apt to engender the malnutrition and upset the normal body metabolism.

The etiology of malnutrition is in some cases obscure; the infant is born at full term of average weight, nursed by the mother whose milk is apparently digested and assimilated, yet the infant does not thrive and ere long shows decline, marked malnutrition and ultimately death follows.

Such a child is, no doubt, one of the unfortunate ones whose inherent potential is far below the standard of human existence and life ebbs away simply because its race is run. The digestive processes, while they lasted, were normally performed, but some inherent defect prematurely ended existence. As a rule, most all cases of malnutrition are the result of gastro-intestinal disorders incidental to errors of diet. The indigestion or dyspepsia of in-



fancy exists in reality, and while much of it is the result of the modern tendency of substitute feeding, yet it does result oftentimes from the mother's milk. Babean hints that over-education of the mother is responsible for her lack of ability to supply wholesome milk. Again other conditions, such as excitement, worry, neurasthenia, the occurrence of menstruation or gestation may produce unfavorable results upon the milk and thus disturb its nutritive value. In the great majority of cases, however, artificial feeding is responsible for the indigestion. This is the result, first, of faulty methods of the administration of foods, and second, the promiscuous and heterogeneous selection of food stuffs, prescribed by the neighbor or parent. Artificial feeding, we must remember, is becoming intensely popular, largely due to the instrumentality of the lay press, which through its advertising columns seeks to encourage by means of photographs, etc., the belief that it is a simple, uncomplicated means of nourishing the child and a great relief to the new woman who seeks to be relieved from her God-given burden of feeding from her own substance, her offspring. While many infants succeed in sailing between the Scylla of faulty methods and the Charybdis of unwise selection of food stuffs, because of inborn tenacious hold on life, many more sink on these rocks or in the waves of ignorance and superstition which are overwhelming, especially among the poor and uneducated. If the scientific principles governing artificial feeding could be instilled into the common knowledge of the people we would have less contention with malnutrition. The gastro-intestinal disease inaugurated by faulty feeding begins the way for the invasion of conditions unfavorable to normal nourishment. The indigestion once established is very apt to be a constant source of trouble and when coupled with a feeble resistance on the part of the child, encourages a chronic condition of intestinal indigestion. But if the indigestion—marked in the simple statement of the mother that the food is not agreeing with it—is corrected at once, malnutrition may be nipped in the bud. Otherwise the process insidiously goes on and is outlined as follows: First, a change in the color and frequency of the stools. The stools are green either when passed or become so a little later; this shows an alkaline condition of the feces, due to a suppression of the normal acids. Bacteria, according to Lesage, cause the change in color. The frequency of the stools is marked, the

quantity is lessened, but the discharges are offensive and irritating. Nervous symptoms soon appear, restlessness, crying, peevishness and sleeplessness. The child wants to be held.

Then even at this stage more complicated nervous symptoms may appear such as the so-called "inward spasms," a simple tremor involving the eyelids and extremities. Convulsions, too, may appear now and often are the first marked symptoms which decide the parents to call a physician. Confusion in diagnosis may result because of the nervous symptoms, as I have seen in consultation practice. Malnutrition is sure to be in evidence, however, as the wasting is observed, the child having lost weight or there has been no gain in weight for a long time. The mother remarks that she feeds the child often enough and if she is nursing it at the breast, she is very apt to say that the child constantly demands the breast or else he never seems satisfied. The very appearance of the mother will lead to a diagnosis in such cases, as she is usually an overworked, constantly tired, anæmic individual, laden perhaps with the responsibilities of other children and the care of the home. The prostration of the mother is reflected in the child and they both together present a striking picture which enables us to make a pronounced diagnosis. Up to this stage there may be no marked evidence of structural changes, but it is very probable that a catarrhal colitis is present, in which case there is apt to be hyperplasia of the lymph nodules. These symptoms are reinforced again by the evidences of impaired bodily metabolism. The presence of uric acid in the urine is an important symptom, as Herter says; it is to be taken as an evidence of destructive metabolism in the nuclei of the cells of the organism and represents the chemic reaction constituents of the nuclei and certain poisons. This view sustains the modern physiologic-chemic belief that uric acid is a terminal product of metabolism and in itself not a poison in chemic reaction.

Uric acid in the infant, not infrequently in its passage, irritates the urethra causing the child pain when urinating and on this account even an infant will not void unless driven to it, because of the pain which accompanies such evacuation of the bladder. Or again, the presence of uric acid may cause irritation of the bladder and so disturb the reflex as to cause constant dribbling of the urine.

As further evidence of the faulty metabolism, we have other

symptoms indicating auto-intoxication, viz., the glands are enlarged—the groin and neck being especially involved. The patient has now reached that stage of wasting which Parrott calls the second stage of gastro-intestinal catarrh. The weight gradually declines; the child being thin and cadaverous, it has an old appearance—the skin loses its elasticity, especially around the gluteal region, over the deltoid and on the thighs. The skin wrinkles and soon, by the wasting of adipose tissue, it resembles tissue paper. The child is pale, anæmic; has an offensive breath, the lips are thin and pale and the eyes look sunken, which appearance is intensified by the dark circles which are under them.

Blood analysis shows a diminution of the number of red blood corpuscles and an increase of leucocytes; diminished hemoglobin. The temperature may be subnormal, as in one of my cases where it continued so for some time, or when there is a marked increase of the symptoms of auto-intoxication, it is usual to find the temperature elevated from one to three and even four or five degrees. The pulse is feeble and rapid (90 to 120) and as exhaustion supervenes it becomes more feeble and more difficult to count. Fenwick calls attention to a fact of interest from the standpoint of prognosis, that with the approach of death, the action of the heart becomes slow and often intermits—sixty beats to the minute has been observed by him in such cases. The respiration is usually increased and shallow, but becomes of the Cheyne-Stokes variety, with the increase of exhaustion and the approach of dissolution. The nervous symptoms are now more pronounced and are apt to be misleading. Convulsions, local spasm, muscular rigidity, exaggerated reflexes, transitory paralysis of certain muscles, mental hebetude, somnolence and coma; spurious hydrocephalus too may be one of the unique complications.

The convulsions are evidence of the intestinal intoxication. Herter says, "They are the immediate precursors of a long series of occasional convulsive seizures to which we cannot give the name of epilepsy." In some cases it is impossible and exceedingly difficult to distinguish the action of local irritants, operating on a reflex arc, from the action of a poison which through auto-intoxication finds its way into the blood.

A case in point. I saw in consultation a case of profound malnutrition (infantile atrophy so-called by Starr). I was consulted because of continued convulsions. The child's history

in brief was that it was seven months old, of healthy parentage, nursed by the mother and up to the appearance of convulsions was considered to be a healthy child. One morning the mother was awakened early, by the child in convulsions. Forty-five convulsions occurred on this day, when they abruptly ceased, but reappeared within a few days; in the meantime gastro-intestinal symptoms appeared in pronounced form. Nutrition was disturbed. The physician treated the case expectantly, but the condition became more distressing. The loss of weight continued with an occasional convulsion or series of convulsions to increase the parents' anxiety. The mother continued to nurse the child. When I saw the case, the child presented the picture of profound infantile atrophy. I recommended the abandonment of the mother's milk, the correcting of gastro-intestinal symptoms and the use of modified milk, beginning in attenuated form and increasing as the symptoms would permit, inunctions of coconut oil, free use of drinking water and proper hygienic care. The patient recovered after four months' treatment.

The local spasms are usually limited to the motor oculi muscles but we may have a more general involvement of muscles. The muscular rigidity and the decubitus noticed by the child burrowing its head into the pillow, the retraction of the head, etc., are suggestive of meningeal involvement, but these symptoms often disappear under appropriate treatment. The mental hebetude, the somnolence and coma indicate a more profound degree of exhaustion and intoxication. The mental hebetude may last for weeks to be followed at last by somnolence, coma and death.

Pseudo-hydrocephalus, according to Holt, does not show on post-mortem examination any condition of the brain which bears relationship to the symptoms. The patient presents the appearance of hydrocephalus and it is a rare complication. I was consulted recently by a mother who presented her child because of hydrocephalus. On examination I found a marked case of chronic intestinal indigestion, with malnutrition, or, as she called it, dyspepsia. The case had been referred to me from Bloomington, Ill.

The hydrocephalus was pronounced and the mental symptoms confirmed the distinguishing skull conformity. I was loth to make a diagnosis of acute hydrocephalus, as I found no evidence of rickets, and as the skull conformation was not of the rickety

type and as I further remembered what Holt had said as a result of his post-mortem examination. I made a provisional diagnosis of pseudo-hydrocephalus and prescribed for the intestinal indigestion. I have seen and had under my care a number of cases of acute and chronic hydrocephalus, but in none of these did I notice intestinal complications.

I can understand that true acute hydrocephalus may exist at the same time as malnutrition, for it is quite probable that the acute infective process, so conspicuous in gastro-intestinal disease, may give rise to infection within the cranial cavity, causing acute meningitis, which is, as Mills truly says, one of the commonest causes of acute hydrocephalus.

The foregoing symptoms are in brief those found in cases of malnutrition following intestinal indigestion, which, in fact, causes fully four-fifths of all cases.

#### DIAGNOSIS.

The diagnosis of malnutrition, while not necessarily difficult, yet demands painstaking observation to determine whether or not some of the diathetic diseases are not the real source of the infirmity. We should not overlook in our inquiry the possibility of kidney, liver, other intestinal disease or malaria to produce a group of symptoms akin to what we have here delineated. The ordinary methods of clinical diagnosis should, therefore, be closely followed, using laboratory methods and careful daily observation.

#### PROGNOSIS.

This is not necessarily bad, for if no organic changes have followed, the prospects for improvement and recovery are encouraging, and the little one may grow in strength and develop its powers without complications if carefully watched. As Holt says, if the cause can be removed the child will get well. It requires patience, diligence and thorough coöperation of the parent or nurse to insure success. In giving a prognosis I am always guarded and am sure to add that "vigilance in this case is the price of health."

#### TREATMENT.

The treatment has two main objects in view, first, to arrest wasting, and second, to repair the damage done by the disease. To this end we should be careful in laying out our campaign of

action, to be thorough and exhaust every resource before losing hope. We cannot rely on drugs except to aid us in promoting resolution. We must depend largely on the regulation of diet. If the mother is nursing the babe, abandon the breast at once, or else employ a wet nurse; but such a substitute is not always satisfactory, and is usually expensive. In my experience modified milk is the best substitute feeding we can employ, and when used on the basis of percentage and carefully followed, we can build a foundation on which a superstructure of good health can be raised. As the subject of modified milk will be discussed elsewhere on the programme, I shall not enter into the discussion of its principles. If a baby does not show improvement on this food, and keeps losing weight, nothing will save it. The atrophy then has involved the organs of assimilation, and hence their function is cut off and death follows. I have used the method of Meigs in feeding and found it applicable in many cases, but in my judgment the method of Holt and of Rotch leads in thoroughness of scientific principles and practical results. The bowels should be regulated, and if diarrhœa exists no diarrhœa mixture should be prescribed. I saw a case in consultation where a diarrhœa mixture had been persistently used and only served to intensify the symptoms. Intestinal antiseptics have but a limited field of action in these cases, but I do not ignore their usefulness. The subgallate of bismuth and the salicylate of bismuth have pleasant effects in allaying intestinal irritation and to help in overcoming the putrefaction. I feel that the free use of water, both by irrigation and the mouth, and even the use of normal salt solution, after the method used in gastro-intestinal infection, should be employed. Elimination is the theory of this treatment, and it is correct I believe where we have such evidences of auto-intoxication.

I have used freely the local inunction of cocoanut oil, applying it twice daily over the abdomen, on the thighs, in the axillary spaces. It promotes nutrition and relieves the harsh condition of the skin.

Cod liver oil, is should be remembered, has no place in the treatment of malnutrition, because it leads to fat intoxication and thus prevents nutrition.

We cannot ignore the percentage basis of infants' food, and when you disturb this relationship you invite indigestion. It is

on this account that artificial feeding on the "try, try again" basis is a failure. (1) Fat, (2) proteid, (3) sugar, (4) salts, (5) water should be combined on a proper percentage basis, the food to be modified according to the physical indications and ability to digest.

Jacksonville, Illinois.

### CONSERVATIVE DIETS IN THE FEEDING OF THE SICK AND CONVALESCENTS.\*

O. P. KERNODLE, M.D.

THE term diet conveys to the mind any and all substances entering the animal organism that give nutrition and sustain life.

And by conservative diets, I wish to convey to the mind a food whose properties are such that they sustain and conserve the vital forces and energies from waste and disease. A food, whose possibilities are so marked and whose composition and digestibility conforms so closely to the needs of the normal animal organs, that with the smallest amount of physiological energy, they may replace the waste material due to disease.

Dietetics has a broader and more general field than any branch of medicine. It is, in fact, the art preservative in healing and all other sciences are subservient to it.

Hipocrates, saw in food, the first principles of medicine, while Galen, Celsus, with scores of others following in his footsteps, reaching higher and farther into its secrets, broadened the scope with advancing ideas as to the therapeutic values of food.

The student, eager to grasp all, sought for remedies outside the realm of nutrition, and the first principles of medicine, as laid down by the father of medicine, were soon lost sight of; and the Dark Ages of dietetic medicine have reigned supreme until recent years.

Diets and feeding have been much neglected by the medical profession until within the last few years. If you attempt a research through the most elaborate and voluminous libraries you

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will find the subject of feeding, not in bound volumes, but in fragmentary opinions scattered here and there among journals; and dealt with lightly, as if it did not deserve a place of prominence in medical science.

Even when opinions were ventured, there were grave doubts in the mind of the author as to the scientific position diets should have. If you wish to find the commencement of the new era of dietetic therapeutics, you will have to search closely the writings of the most recent authors.

Liebig gave diets and food values a new impulse that set the chemist and physiologist to work, and through the acumen of the chemist from the laboratories of the learned chemist and physiologist, we have been brought face to face with facts indisputable; and our knowledge of foods and food values has been broadened; so that today, diet is the accepted foundation of scientific therapeutics.

The question of diet is of vital importance, and is the question confronting the human family today, in health and in sickness. It plays the all-important part in reparation and structure building, sustaining forces weakened by waste and disease, and is paramount to all other therapeutics.

Medicines are looked upon with less favor as we grow more thoroughly acquainted with dietetic therapeutics and there is less inclination or tendency on the part of the profession to prescribe so liberally medicines and medical compounds. Medicine, whose vaunted specific properties were once the hobby, is growing less in favor with the progressive physician as he studies and becomes more familiar along the lines of dietetics.

During the past, but little attention has been paid to diet as a part of medicine; the sick and convalescents were, and are often now turned over to the cook, after we have prescribed a routine of remedies.

The first prerequisite to a definite understanding of the universal adaptability, as well as the applicability, of the best and most perfect diet for the sick, is to have a clear idea and definite knowledge of the customs of the individual in health, as well as a clear understanding of the chemical composition of food and food compounds. It is obvious to the mind of every physician that there should be certain modifications in the food given those in health to suit the requirements of the sick; and the



quantity to be given, as well as the quality of the food, should be in accordance with the conditions surrounding the case.

Formerly the physician was erroneously led into opinions and practices in feeding the sick, through simple observations, without a definite knowledge of food values, but today the field is before him with no barriers, and he may choose his diet from every source; select and reject, until he has within his reach just what is required.

Too often have we sought exclusively in the physiology of digestion and nutrition the principles of the study of dietetics. We may and do find unsolved problems in physiological dietetics that are far reaching; such as the remote use of certain foods and drinks, peculiar characteristics of certain elements, producing certain physiological effects long after use, and being transmitted from generation to generation the same as family characteristics and idiosyncracies.

In the study of dietetics, there is much more than simple physiological conditions to be considered; the peculiar features of the individual, the mental forces and former habits, also the beliefs and physical conditions have often to be weighed and carefully considered.

Often by scrupulously studying the case before us we may solve what at first seemed a complex problem, simplify the method of diets and find the task less laborious than we at first supposed.

We give the name food to all substances introduced into the human organism that serve as nutrition and sustain life and give force and energy. These substances are divided into organic and inorganic principles; they contain all primordial elements of cell structure and reparation of retrograde metamorphosis.

As such divisions, we have in the first, those of first and greatest importance, the protein principles, "Albuminoid protoplasmic cell pabulum," as Hoffmeister has called them, and non-protein principles. These principles in their simplicity contain all the elements of the body, or the body contains in its make-up all these principles.

Now that our chemical and physiological knowledge has become more exact, we can intelligently appreciate their utility in their various combinations, as true nutritive agents.

Not to go into detail and bring each article of food used down to a chemical and physiological test, before definitely deciding its usefulness, and its proper place in cell structure building, would be to jeopardize the patient, and destroy its value as a food, through unscientific procedures.

The quantitative composition of diets, the atomic construction of proximate principles entering into them, the results obtained from each, as well as their respective merits and the high and low nutritive values, are today accurately understood. We know which of the proximate principles have heat and energy-yielding influences, and which enter into the chemical and histological construction of all fluids, tissues, ferments and glandular structures of the body, and which are essential constituents in mechanical energy alone. The physiological action of these elements and the chemical laws governing the different classes and conditions, can be positively demonstrated.

When we apply this knowledge intelligently, and select and administer the proper food, we produce results almost at will with a wonderful degree of exactness.

The selection of the most efficacious diets in disease, divided into their chemical elements, helps us to better understand their place in restoration of tissues. The inorganic substances all enter the body under their own form, either alone or in combination with other classes. They are not oxidized or split up within the system to enter into the chemical formation of other compounds, but uniting mechanically with the proteid groups; in fact they only act mechanically, and after having served their purpose to the body, pass out with the excrementitious waste, unchanged.

The organic principles, are oxidized or split up within the system and yield heat and energy; and act as lubricants and formative bodies, and are eliminated from the body as carbon dioxide and water.

All the substances irrespective of specific names, mechanically and chemically united in just proportion, are absolutely essential to form the fluids, tissues, glands and ferments of the body.

If by any reason there is an abnormal transformation and the relative quantities are changed, there is marked manifestation in the excrementitious waste, especially shown in the urine. Allow me to state, right here, "That a careful examination of the urine,

will often furnish an exact key to the condition of the system." We may learn positively by such examinations which foods are absorbed and serve as nutrition and which are not. Dr. William Porter asserts, "That in connection with the oxidization of proteid substances, a disturbance in their anabolism not only changes the relative proportions between the urea and uric acid, but develops an almost unlimited number of katabolins, some of which are perfectly inert, while others are as toxic and dangerous to life as the well known cyanide compound, prussic acid."

The oxygenating capacity of the system is a limited one, yet it has a moderately wide margin. Quite frequently this margin is exceeded by eating too freely of all kinds of food; as a natural sequence, respirations and circulation must necessarily be increased, to prevent suboxidization, as a defective supply of oxygen disturbs the metabolism of the proteid bodies, an unlimited number of katabolins furnishes a rational explanation to all the physiological conditions and systems presenting for treatment. We are forced to believe that so long as the anabolic processes of the body are not disturbed by any abnormal agency, there will not develop any pathological lesion or symptom.

We find in diseased conditions the nutritive powers often overtaxed, which calls for the practical application of a predigested food, by which there is a great saving of vital force, which is a great factor in changing the physiological conditions and materially assists in perfecting a complete recovery of the sick.

The subject is too broad and deep, and time too limited, to enter into minute detail of each change that takes place in digestion, yet the principles can be pointed out, and by consulting the tables before us, we may work more to a definite purpose in perfecting the rapid and complete recovery of the sick.

It is essential to know the heat-producing qualities of a food; heat is the element that keeps up the equilibrium, and either an abnormal or subnormal amount changes the ferments and disturbs the anabolic forces of the body. A food, which entering the body, when oxidized within the system, produces the requisite amount of heat, keeps in motion and stimulates the nervous mechanism and chemical mutations necessary to maintain animal life, without overtaxing the energies, is the ideal food. Heat produced by the oxidization of foods, acts upon the cerebro-spinal centres, and is conveyed by impulse to the central nervous

system, and makes impression upon the secreting glands and tissues, which keeps up the uniform action throughout the entire body.

These chemico-physiological compounds understood as they should be, give excellent working advantages, whereby the physician and patient may perfectly understand each other, and work out a harmonious whole in the management of the case. These scientific principles can be demonstrated and proved unquestionably true.

Knowing the composition possibilities and nutritive values of food, as well as the laws of digestion, assimilation and cell structure development, the changes taking place in the laboratories of the system, the molecular value of each substance entering it, is it not possible for the physician to combat disease with diets alone and upon purely scientific principles?

Certain diseases we know are dealt with exclusively on dietetic principles, such as, rickets, diabetes and muscular atrophy.

If we take the table of comparison given by Professors Moleschott, Porter, Hoffmeister, Cheadle and others, as a working basis, we may take our patients from an almost exhausted condition through each change, by diet alone, to a complete restoration of health.

In acute febrile disease where liquid secretions are rapidly exhausted, the body should be compensated as rapidly as waste takes place. Liquid diets, peptonized soups and broths, with milks, beef and fruit juices should form the compensative diet. Where destructive metamorphosis has gone on long and a vast amount of destruction of cell element has taken place, we may add eggs, meat and pre-digested food, containing reparative principles, with sufficient stimulants to conserve the waning forces.

Nucleine and proto-nucleine possess wonderful recuperative powers and are readily utilized by the system. I have found bread-crust, crumbed and roasted, added to peptonized boiled milk with a pinch of salt, highly efficacious and palatable. Whipped egg with cream, with a little brandy is often tolerated by the system, and taken up and utilized rapidly. The white meat from turkey or chicken, free from fat, boiled, dried and powdered, mixed liberally with peptonized cream, makes a palatable and nutritious diet. Often it is absolutely necessary to add wines or some alcoholic compound to the regular diet; the very best of

wines or spirits should always be used, and the results will be simply magical.

We change the character of secretions by diet, give to the nursing mother a sustaining principle, and the food given to her offspring through the lacteal glands, conforms in a large measure to the nourishment the mother receives. Where there is a nitrogenous or non-nitrogenous food given, where the secretions are devoid of the nutritive principles of perfect development to the child, it may be modified in such a way, by foods alone, that a perfect physical development may be obtained. We often see the ill-nourished child through faulty feeding from the breast, and we can and do remedy the fault through the mother by prescribing for the mother a diet with a full compensative amount of nutritive constituents.

Nature places a limit to a redundancy and has so carefully arranged the organs of assimilation that an over-accumulation is cast off as waste, yet we may and do increase the capacity of an organ or the system to a competency to fulfill a required want. So far we have not been able to limit the true action of lactation, yet we know that diet changes have worked almost miracles in infants at the breasts. It is through the energies of our more recent physiologists and chemists that we have learned to adjust with any show of approximating accuracy the definite proportions of increase or decrease in perfect cell nutrition and development. We need only to observe closely to become familiar with the needs of the case, and call to our aid the wise counsel and practical suggestions made by the chemist and physiologists of today to succeed.

If by transfusion of saline solution we may sustain life, how much more may be done by giving to the living cells food of such nutritive value that a perfect conservation of force and complete restoration of functional activity may be brought about.

Foods from the primordial, or protoplasmic, the albuminoid cell structure substances for the sick, to a complete and complex food may be given, and with a judicious hand the bark of life may be steered past the reefs and shoals of disease, with food as a guide, into the broad deep ocean of health.

Surrounding us, upon the broad plains of therapeutics, lies an unknown wealth of hidden health, and beneath the magical touch of the skilled chemist and learned physician, from the dross and

sands of nature, the golden stream pours upon the pathway to success, and we see written across the broad expanse of futurity, this inscription, in lines of increasing brilliancy—Learn dietetics.  
304 Ohio Street, Sedalia, Missouri.

## BRONCHO-PNEUMONIA.\*

J. D. BRUMMALL, M.D.

I SHALL endeavor to impart to you some of the practical points in my observation of acute broncho-pneumonia in infancy and childhood. It is peculiarly a disease of early life, and, while we find it at all ages, what I have to say will have special reference to the disease in children from infancy to three years of age. It has little respect for sex, perhaps the larger number of primary cases appearing in the male. It affects all classes, but as other diseases, it is more frequent where we have poor hygienic surroundings or the system is debilitated from other causes, either local or constitutional diseases, particularly rachitic or syphilitic. It is a frequent complication or sequel of the infectious diseases and oftentimes so of ilio-colitis or intestinal ptomaine infection. Its appearing most frequently in the winter or early spring months and when the weather is most changeable is conclusive evidence that cold or atmospheric changes is one of its etiological factors. The microscope demonstrates that the different bacilli are causative factors, the pneumococcus, the streptococcus and the staphylococcus, any one, two or all three of them appearing in the same case. The pneumococcus is the more frequent, the streptococcus next so, and where there are only two found they are most apt to be the ones. The pneumococcus is nearly always present in the primary form of broncho-pneumonia and appears alone in the majority of cases, the secondary cases are usually due to a mixed infection and are most frequently associated with streptococcus, and while we have the pneumococcus in a large number of these cases, they do not seem to play as important a part as the streptococcus. The staphylococcus are second in point

\*Read before the Medical Association of Missouri at Excelsior Springs, May, 1898.

of frequency in the mixed cases. The cases in which the streptococcus appears are more apt to be of the severe type.

The pathology in broncho-pneumonia is very varied, there being no regular order of changes as in lobar pneumonia, although a certain number of cases appear to follow tolerably well defined stages of congestion, red hepatization, gray hepatization, and resolution. But the disease may be arrested at any of the stages and the case recover, or death may occur at any stage and the autopsy reveal portions of the lung representing all the stages mentioned. The process may begin in the larger tubes and gradually extend to those of smaller calibre finally invading the pulmonary lobules, in which these tubes terminate, or to the air vesicles which surround the tubes in its course through the lung, producing zones of pneumonia surrounding the small bronchi. The bronchi and air vesicles may be the seat of trouble at the beginning as they have been found affected in cases which proved fatal in a few hours after the first symptoms. A few cases bear no relation to the bronchi, these being smaller or larger areas of pneumonia scattered through the lung, usually near the surface. It is most often found in the posterior portions of the lower lobes of both lungs and when in the upper lobes the posterior portions, the left is apt to be the most severely affected. During the first three or four days there is an acute congestion of the affected areas, catarrhal inflammation of the bronchi, the air vesicles being filled with red blood corpuscles, epithelial cells, and a few leucocytes; from the fourth to the fourteenth day large areas of consolidation are formed oftentimes complicated with pleurisy as the affected parts of the lungs are most apt to be superficial. The small bronchi are much thickened and filled with leucocytes, the air vesicles being packed with the same, a small amount of fibrin and a few red blood corpuscles and epithelial cells. The longer the disease continues the greater the consolidation, until it would seem the whole lungs were consolidated and enlarged, there being thickening of the wall of the bronchi with dilatation of their calibre. That part of the lung not consolidated may be almost white owing to vesicular emphysema, and there may be interstitial emphysema; the air vesicles are completely distended with leucocytes and there may be found small cavities containing pus. Death may occur at any stage, or the disease may be arrested at any stage and the case recover. If resolution takes place

during the congested state before there is any consolidation, recovery is apt to be very rapid; after consolidation recovery will be slower and relapses are quite frequent, thus prolonging the case and producing a chronic condition.

The clinical picture presented by broncho-pneumonia is an exceedingly varied one. The severe symptoms may come suddenly as a congestion of the air cells of an infant's lungs interferes with their function almost as much as consolidation. However, the onset is more apt to be gradual with the premonitory symptoms of an influenza or bronchitis. We have rapid and labored breathing, a rapid, weak, and compressible pulse. The temperature is high, but not extremely so except in very severe cases. There may be prostration, cyanosis and cerebral symptoms. Pain is slight, but there is often restlessness. The respiratory murmur is everywhere feeble. There are first sibilant and afterwards subcrepitant rales over the entire chest mingled with coarser moist rales. Percussion is usually unsatisfactory, as we may get increased resonance over consolidated lungs owing to the accompanying emphysema.

Broncho-pneumonia is always a serious disease and the younger the patient the more grave the prognosis. The previous condition and surroundings of the patient very materially influence the disease. The primary cases are more tractable than the secondary. Nervous symptoms early in the disease need not give alarm, but occurring later in the trouble are to be apprehended with fear; continuous high temperature is to be dreaded.

The prophylactic and hygienic treatment of broncho-pneumonia is all-important. If proper attention were paid to the mild cases, we would have fewer cases of pneumonia to treat. Well ventilated rooms and moderately heated air are to be sought that plenty of oxygen may be secured, while the entire surface of the child, except its head and face, should be protected from direct contact with the air, when, in a vast majority of cases, nothing more need be done unless it be to attend to the condition of the bowels, kidneys and other secretions. Local applications are quite useful; turpentine and camphor stupes, iodine salve, mustard paste, hot cloths, etc., all have their places. The oil silk jacket has its advocates, and while I have observed its usefulness, I believe that it is oftentimes used detrimentally. If the oil-silk is of any ser-



vice, it is within the first few days and should not be used longer than about three days, as by its imperviousness it will produce a moist, clammy condition of the surface covered and lose its beneficial effect and I believe will do harm. I had rather at that time substitute a flannel cloth or cotton jacket during the congestive stage when the child is cross and restless, and where narcotics have failed to bring the desired quiet I have, by the application of an onion poultice sufficiently large to envelope the chest and applied warm, secured that needed rest almost as if by magic and arrested the disease. Rewarm the poultice as often as required to sustain the proper amount of heat about every two hours. The only objection I find to them is that if you begin them you must continue their use two or three days and sometimes longer, or on their removal you will in twelve or twenty-four hours have a return of symptoms and will then have to renew their use. However, if on removal of the poultice you will apply a mustard paste or hot flannel cloths, you will likely have no cause for complaint. An occasional emetic may be of service, but should be used very cautiously; a slight and continuous effect of ipecac is usually better. The iodides are useful and in cases tending to chronicity creosote is beneficial. In cases requiring stimulants, which are not a few, whiskey may be used freely, a teaspoonful every two or three hours to a child one year old. It may be combined with strychnia if necessary. The nerves must be quieted or stimulated as required; strychnia for the latter and chloral or phenacetine for the former. Phenacetine has a pleasant influence on the temperature, which, however, need not be reduced unless it is responsible for some nerve symptoms. The temperature under  $103^{\circ}$  rarely gives trouble and may not as high as  $105^{\circ}$ . I have usually found the antipyretics to act very nicely in reducing the temperature, and have not resorted to the pack or cold bath, although they are recommended very highly.

Salisbury, Missouri.

## MEMBRANOUS CROUP AND INTUBATION.\*

G. G. THORNTON, M.D.

Gentlemen of the Kentucky State Medical Society:

A remark which was made by one of my classmates while attending lectures in 1886 made a deep impression on me and aroused a train of thought which led me to think how near and yet how far from a true conception of the doctor's duties and abilities he had.

After hearing lectures on pneumonia, typhoid fever and pulmonary tuberculosis, and learning to his surprise that the profession had no specific, "guaranteed to cure," remedy for these as well as many other diseases, he seemed much disappointed and said: "What's the use of our studying medicine? We can't cure anything, hardly. There are consumption, typhoid, fever, pneumonia, scarlet fever, diphtheria, mumps, measles and many other diseases which will sometimes get well without medicine and often die in spite of medical skill, none of which the faculty claim they can cure. They say the disease must run its course and that we must meet indications (treat symptoms) and safely guide the bark (the patient) through the tempestuous storms of a high fever and feeble heart and delirious brain to Old Point Comfort of convalescence." "What I want to learn," said he, "is how to cure something."

And this same want has been felt by every disciple of Esculapius and has served to inspire the profession with a hope that by the combined efforts and experience of the whole profession the number of curable diseases will be multiplied by diminishing the number of incurable ones. Diphtheria and typhoid fever, two diseases which only a few years ago "had to run their course" are now as amenable to treatment as any which we are called to treat *when seen early*. Others find us still groping, now by empiricism, and again by dim scintillations of some scientific research, hoping soon to base our treatment on more promising and assuring grounds.

\* Read before the Kentucky State Medical Society at Maysville, May 12, 1898.

To this latter class belongs "membranous croup" or pseudo-diphtheritic laryngitis, the subject of this paper. I say this advisedly because every man who is at all up on the subject knows that some bacteriologists, as well as practitioners, regard diphtheria and membranous croup, as being the same disease, the only difference being in the location of the membrane—believing the Klebs-Loeffler bacillus to be the germ cause of the membrane in either the larynx or pharynx. Others believe that membranous croup is a separate and distinct disease caused by an entirely different germ if caused by a germ at all. To this class I belong. Situated in the country where there have not been a half dozen cases of diphtheria in 10 years, but where I have seen from one to three cases of croup every year during that time, I feel perfectly satisfied that they are *different diseases*. I can understand how a physician who is located in a city where there is always more or less diphtheria and where the source of infection cannot be traced as it can in the country, where 20 cases of diphtheria are seen to one of membranous croup, how he might easily be led to believe that *all* cases were diphtheria. I have seen many cases of croup and have never isolated any of them and have never seen a case where there could, on the most diligent inquiry, be traced any source of infection, neither have I ever seen any cases that were infected from these cases, though there were exposures to all. I would say, then, that one is infectious, the other is not; one may kill by systemic poisoning or by local obstruction, the other always kills, if at all, by local obstruction; one does not seem to be influenced by heredity, while so far as my experience goes the other is. I know a brother and sister where it seems to be very pronounced. The brother has lost three children and the sister has had five cases in her family, losing four of the five from this disease. Of these eight cases there were only two that occurred within one year of each other. I note this fact to show that it was not diphtheria which passed by infection from one to another.

Treatment.—Believing antitoxin to be a specific for diphtheria and that croup is *not* diphtheria, I leave it out of the treatment where a positive diagnosis can be made and believe that if we ever have a specific for this disease it is yet to be discovered.

This much-to-be-desired discovery has long been sought and ever and anon some enthusiast has shouted, "eureka!"; yet today

we are almost hopeless medicinally when confronted by a case of croup. Who of you have not tried with eager hope and anxious expectation the new remedies as they have unfurled their banners, only to go down in disappointment at the bed side of the little fellow who was dying "for the want of breath." I have tried pilocarpine, ipecac, fumes from slacking lime, fumes from turpentine on boiling water, "coal oil" and many of the other remedies recommended, both singly and combined and have seen no effect from them which would inspire me with any confidence in their curative properties in this disease.

Recently I see lac sulphur recommended as being a specific, but have had no opportunity of trying it. However, I expect when I do try it to go down in defeat with it as I have done with other specifics. By the way, isn't it strange how members of our profession, sensible men, will go off on a certain drug, or line of treatment for some disease, or some surgical operation which they believe to be a panacea for all the ills to which flesh is heir, which when weighed by the profession is found wanting?

What then are we to do? Either perform tracheotomy or intubation. The latter has many advantages over the former and some disadvantages. The advantages are, you don't have to use the knife which is such a terror to most people, hence the family will more often give their consent early; you don't make any wound, you can do the operation much more quickly, you don't have to give an anæsthetic, you excite the little fellow less and give him no real pain.

Although my experience with intubation has been very limited, only having had three cases, I will here report them.

CASE I.—Oscar W., male, age  $6\frac{1}{2}$  years, white. Had been subject to hoarse spells for which they had always used domestic remedies, was brought to me on September 6, 1897, very hoarse. His breathing labored, slight cough, appetite good, temperature normal. He had been hoarse for five or six days and gradually getting worse. No membrane visible on tonsils or fauces. Treatment from the list of remedies above mentioned till on the night of the 7th at 11 P. M. I was summoned and found him struggling for breath. With such assistance as the family could give I intubated him with an O'Dyer tube, with but little difficulty. Within five minutes he was breathing easier and in fifteen minutes he was asleep and slept very well the remainder

of the night. The tube gave him very little inconvenience except in swallowing and as he was a little spoiled and nothing hurting him he was allowed to be up and about the house. Medicine was discontinued and his nourishment was liquid and mostly milk, part of it being given *per rectum* on account of the difficulty in swallowing. The tube was removed after 81 hours, his breathing remaining easy and the hoarseness gradually disappearing after several days.

CASE II.—Male, age 2 years, white. Had been hoarse four or five days, though, as is usual with these cases, the insidious nature of the disease had led the parents to believe there was nothing serious the matter. The day I saw him first (December 2, 1897), he had been taken by his parents in an open top buggy a distance of 7 or 8 miles, through a cold, drizzling rain. When I first examined him I thought it was a case of spasmodic croup, but I soon found that it was worse than that. He grew worse rapidly and when I arrived on the 3d, he was in such a condition as to indicate that he might die before I could get ready to intubate, as my hands were cold and it took some time to get them warm enough for the *tactus eruditus* to be normal. Intubation was performed at 8 A. M. His breathing became much more quiet though it was about 30 respirations per minute. In 2 hours it was 35. I left with instructions to remove the tube if the dyspnoea became very marked. This was done at 4 P. M., and I arrived soon after and as I then regarded his case as hopeless I made no farther effort and he died at 6 P. M.

CASE III.—Marguerite G., female, white, age 6½ years. Saw her first on January 7, 1898. Her pulse was 110, temperature 101°, breathing labored and respirations 30 per minute. She had not been well for a week, the hoarseness gradually growing more marked. There was a patch of white membrane on each tonsil as large as a dime. This is the second time I have ever seen the membrane in a case of croup and at first I thought this might be diphtheria, although there were no other cases in the neighborhood and the child had been at home all winter. Treatment was tentative till on the 8th at 1.30 P. M., her condition was such that intubation was performed. Relief was immediate and she continued to do well on the 9th and 10th, her pulse being about 100 and breathing about 30 per minute, but on the 11th her breathing became more labored and respirations from 35 to 45 per

minute. After remaining in position 64 hours the tube was removed and its caliber found to be considerably obstructed. Her breathing was much better for a while now, but in a few hours became worse and after remaining out for 9 hours the tube was again introduced. Her condition was such that I had little hope of its doing any good. However, to my surprise it gave almost complete relief again. In 10 or 12 hours the tube began to show signs of obstruction and in 17 hours was again removed and its removal followed by relief, which, with some light paroxysms of dyspnoea, continued. At times while the tube was being used her pulse was from 140 to 160, respirations from 45 to 50, her temperature from  $102^{\circ}$  to  $102\frac{1}{2}^{\circ}$  and her condition seemed almost hopeless and I am satisfied if the tube had have been left in after either the first or second introduction she would have died, or if the tube had not been used both times she would have died without it. She was given during 3 or 4 days 1-120 grain nitrate strychnia every 4 or 5 hours and whisky every 3 hours. nitrate of strychnia every 4 or 5 hours and whiskey every 3 hours. Her recovery was slow and her voice was 6 or 7 weeks in becoming normal.

From my experience with this disease I have learned some things which may be of some interest to some of you.

First.—I have never seen a case of membranous croup get well that was not intubated, though I recognize the fact that there are some cases that do.

Second.—I believe that by a study of the anatomy of larynx and the technique of the operation any doctor with sufficient skill to introduce a catheter in the female by the sense of touch who has seen the operation done, and has a "little of what we call nerve" can do the operation.

Third.—It is best especially for beginners to leave the thread in the tube and bring it out at the left corner of the mouth and fasten it by pasting it to the face by a piece of adhesive plaster. This facilitates the removal of the tube, if necessary, by any one and can be done by the family in the absence of the doctor should occasion demand. I know of no operation which I have ever attempted to perform more difficult than the removal of a tube from a little fellow who is gasping for breath, by the extractor made for that purpose. The thread gives little inconvenience and can do no harm. I have thought that in case

it did seem to annoy the little fellow we might let him swallow it and then when we desired might catch the loop of thread with a forefinger or failing to do this might produce vomiting by ipecac when the thread would be thrown up and thus render extraction easier than by the instrument.

Fourth.—That while not all who are intubated will get well the operation can be so quickly and easily done and the dangers are so few, that it is always justifiable in cases where indicated.

Fifth.—That removal and re-introduction of the tube will sometimes save life where it would have been lost by letting it remain in throughout the disease or by letting it remain out after its removal.

Sixth.—That if the tube gives immediate relief, but the respirations remain at from 30 to 35 per minute with a tendency to become more rapid, the prognosis is bad.

Gravel Switch, Ky.

## MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

THE following is the preliminary programme for the meeting of the Mississippi Valley Medical Association, at Nashville, October 11-14, 1898:

B. Sherwood-Dunn, Boston, Mass., "Why I have Abandoned the General Practice of Vaginal Hysterectomy"; J. A. Stucky, Lexington, Ky., "Tonsillitis or Quinsy, Causes and Treatment"; H. W. Whitaker, Columbus, O., "Pichi"; A. Ravogli, Cincinnati, O., "A Few Practical Points in the Treatment of Posterior Urethritis"; Frank Parsons Norbury, Jacksonville, Ill., "The Neuro-Hypothesis of Rheumatoid Arthritis"; A. M. Osness, Dayton, O., "Diphtheria and its Logical Treatment"; F. E. Kelly, La Moille, Ill., "Variocoele"; F. F. Bryan, Georgetown, Ky., "A Plea for Pelvic Peritonitis and Cellulitis"; John M. Batten, Pittsburg, Pa., "Syphilis"; George W. Johnson, Dunning, Ill., "Gonangiectomy and Orchidectomy for Hypertrophied Prostate in Old Men"; George F. Keiper, Lafayette, Ind., "Wounds of the Lachrymal Apparatus, Report of Operation for Restoration of Canaliculi Obliterated by Traumatism"; Shelby C. Carson, Greensboro, Ala., "A Consideration of the Limit of Operative Gynecology"; W. H. Humiston, Cleveland, O., "The Relations of the Gynecologist and the Neurologist"; W. Gaston McFadden, Shelbyville, Ind., "Intermingling and Changing of Type in Diseases"; William F. Barclay, Pittsburg, Pa., "Mercury and Its Action"; J. Rilus Eastman, Indianapolis, Ind., "The Diagnosis of Gonorrhœa in Women"; S. E. Milliken, Dallas, Tex., "Sub-Periosteal Removal of Caries from the Pelvic Basin with the Report of Cases"; Thomas Charles Martin, Cleveland, O., "Complete Inspection of the Rectum by Means of Newer Mechanical Appliances"; George D. Kahlo, Indianapolis, Ind., "Hydrotherapy in Stomach Diseases"; Alexander C. Wiener, Chicago, Ill., "Surgical Treatment of Infantile Paralysis"; James M. M. Parrot, Kingston, N. C., "Supra-pubic Cystotomy *vs.* Perineal Section"; R. C. Pratt, McKenzie, Tenn., "Report of Cases in Obstetrics with Complications"; John L. Jelks, Memphis, Tenn., "The Relationship Between the Genito-Urinary Tract and Rectum, with Special Reference to the Female"; T. Virgil Hubbard, Atlanta, Ga., "How



Should We Treat Typhoid Fever?" W. W. Taylor, Memphis, Tenn., "A Clinical Contribution to Ectopic Gestation"; M. Goltman, Memphis, Tenn., "Interesting Surgical Cases"; I. N. Love, St. Louis, Mo., "The Bicycle from the Medical Standpoint"; Joseph Price, Philadelphia, Pa., "Surgical Treatment of Pus in the Pelvis"; Andrew Timberman, Columbus, O., "Operations on the Mastoid, When and How Performed"; R. A. Bate, Louisville, Ky., "Arthritic Diathesis"; Charles W. Aitken, Flemmingsburg, Ky., "Diagnostic and Therapeutic Uses of Tuberculin"; G. W. Halley, Kansas City, Mo., "Some Pathological Conditions of the Ovaries and Adnexa Causing Pain."

## BOOK REVIEWS.

*Handbuch der Ernährungstherapie und Diätetik.* Edited by E. VON LEYDEN. Vol. II, Part 1. Published by Georg Thieme, Leipsig, Germany. 1898.

The first part of the second volume quickly follows the first of this treatise on dietetics. Klempner, Riegel, Ewald, Boas and Stadelmann are among the eminent scientists who contribute chapters. Suitable diets for patients suffering from diseases of the lungs, throat, heart, nerves, stomach, bowels, liver and pancreas, together with those best adapted to parasitic and functional diseases, are each in turn carefully considered. We doubt if the book is anywhere excelled as an authoritative reference book.

DEFORMITIES. A Text-book on Orthopedic Surgery. By EDWARD J. FARNUM, M.D. Profusely illustrated. Published by the Chicago Medical Book Co., 35 Randolph Street, Chicago, Ill. 1898. Price \$5.00.

This volume presents in most excellent book form the latest theory and knowledge on the subject, "The Promotion and Correction of Deformities in the Human Body." It is equally interesting and valuable to the pediatricist and surgeon. We would specially commend the illustrations, which number over 200 and include not only many from large standard works, but also skiagraphs of the most recent discoveries, and many pictures original with the authors. For Edwin Freeman, M.D., and Edwin Younkin, M.D., have largely contributed to the book. The arrangement in paragraphs, headings, type, etc., make the book an excellent one for a text-book. On the other hand the details of operations and the mechanical apparatus are so fully described as to make the book of great value to the practitioner.

# ANNALS OF GYNECOLOGY AND PEDIATRY

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## ORIGINAL COMMUNICATIONS

### STONES IN THE OVARY.

EMIL RIES, M.D.

Professor of Gynecology, Post-Graduate Medical School, Chicago, Ill.

CALCIFICATION of entire ovaries, or, calcification, petrification or ossification of tumors of the ovary, has been described repeatedly in a more or less reliable way. What is to be described here under the name of "stones in the ovary," is a formation which does not comprise the entire ovary, and takes its origin in a normal component of the ovary. Modern European gynecologic literature, as far as I can see, with the exception of a short communication by Slavjansky, contains no notice whatever of these formations, while the American literature contains two papers about them, published in 1892 and 1893.

My observations were made on three cases seen in one year, two operated on by myself, and one for which I am indebted to Dr. Ludvig Hektoen, Professor of Pathology at Rush Medical College, Chicago.

The first specimen was discovered during the pathologic examination of a pyosalpinx removed with the ovary. The patient was about 40 years old and had had several children. The history of her disease and the operation were those usual in pyosalpinx. Searching for possible ovarian abscesses in the specimen which had been hardened in formol, I unexpectedly met with a body as

hard as stone, which resisted the knife very energetically. The ovary was not enlarged, and contained a number of old, and one fresh corpus luteum, the latter showing the yellow color of its peripheral layer most plainly. The hard body could be broken in two with a very strong knife, and included a cavity which contained a small amount of a brownish substance. The hard cortex was as white as the surrounding ovarian tissue. One-half of the stone was carefully enucleated from the ovarian tissue, and thus a hemispheric body with a peculiar surface was isolated. This body measured 13: 11: 19 mm. The surface showed tortuous elevations between which furrows existed, the whole resembling the surface of the brain, not that of a mulberry (see below). Microscopic examination of the brown substance in the cavity showed pretty well preserved red blood-corpuscles and numerous beautiful crystals of cholesterol. The cavity was invested with a membrane which was intimately adherent to the cortex, while it was smooth towards the cavity. It could be detached only in small shreds. After decalcification, a small piece of the cortex was examined in teased specimens. These, as well as specimens of the membrane investing the cavity, consisted of fibres of a hyaline substance without nuclei and of an amorphous mass of detritus.

Dr. Hektoen's case, as far as we could learn, presented nothing extraordinary in its clinical symptoms, or in the course of the operation. The specimen shows a small hydrosalpinx without any peculiar macroscopic or microscopic appearances. The ovary, with a number of old corpora lutea, is attached to the occluded abdominal end of the tube. The inferior border of the ovary is torn, and a few shreds of tissue unite this tear with a body 30: 20: 15 mm. in diameter, which, apart from its size, resembles the stone described in the first case, in every detail. This stone is so hard that it can only be opened with a chisel. It presents the brain-like convolutions of the surface, is of white color, and contains an empty central cavity of about 4 mm. diameter again invested with a membrane. The stone is almost as large as the rest of the ovary, and fits snugly into the tear of the inferior ovarian edge, so that it is plain that originally the stone was located in the ovary and was imbedded in ovarian tissue as the stone in case one. Microscopic examination of a decalcified piece of the cortex shows the same lack of structure as in the first case.

Dr. W. S. Haines, Professor of Chemistry at Rush Medical

College, kindly made a chemical investigation of these two apparently rare formations. I wish to express my best thanks to him and submit his report here:

"The fragments of the two ovarian calculi which you placed in my hands have been submitted to qualitative analysis. Both are found to consist of a mixture of organic and mineral compounds. The former is composed chiefly of fibrous material with minor quantities of fat and cholesterin, while the mineral matter is made up of the carbonates and phosphates of calcium and magnesium, with unimportant traces of chlorides and sulphates, presumably of sodium and potassium."

The third case was obtained in one of my operations, a vaginal celiotomy which was performed on a multipara of 40 years for procidentia and adherent retroflexion of uterus and tumor of the right appendages. After luxation of the uterus I palpated the right appendages and found a very hard ovary imbedded in adhesions, and a small tubal tumor. After the adhesions had been broken up and the right appendages had been brought down into the vagina for inspection, it was seen that the ovary contained a stone which at one point reached the surface of the ovary, while the rest was imbedded in ovarian tissue. Pressing against it with the tip of the finger I could enucleate the stone without hemorrhage. A shell of ovarian tissue was left behind. The tube of this side was a hydrosalpinx, the uterine end of which had become severed completely from the uterus and presented as smooth and round an appearance as the abdominal end (spontaneous amputation of the tube). The other side was normal, with the exception of a few strings of adhesions which were broken up. The entire posterior surface of the uterus was covered with numerous larger and smaller cysts resembling a bullous eruption. The contents of the cysts were serous. Recovery uneventful.

The stone removed in this case has the measurements 52:24:18 mm.; it shows the same brain-like convolutions of the surface as the first two cases. It is easily broken in two by strong pressure with a knife, and the shell proves to contain a large and a small cavity, which communicate, one with the other, by a small aperture. The cavity of the stone contains pultaceous masses (cholesterin and detritus), and presents on its wall a few flat convolutions similiar to those on the surface, but smaller and less prominent. After removal of the detritus from the cavity, a

smooth membrane is seen investing the cavity, which is so firm that it can be detached to some extent without tearing, and holds the two halves of the stone together after the shell has been cut in two. The shell is from 3 to 5 mm. thick and presents, in the fresh specimen, a distinctly orange-yellow tinge. The shell is less hard than in the first two cases, the deposition of lime-salts being apparently less advanced than in the other cases.

After decalcification, some hyaline threads and detritus without nuclei can be seen. The investing membrane is examined in cut and teased specimens, without giving any results different from those obtained from decalcified portions of the shell, nor do stains produce any better pictures.

The cases recorded in the American literature are the following:

Bland Sutton (London, Eng.), *Amer. Journ. Obst.*, 1892, Vol. 26). At the post-mortem of a woman who had died from cancer of the breast, an ovary with two hard nodules is found. The one is enclosed in a cyst and presents a tuberculated surface like a mulberry calculus from the bladder, the other is of irregular shape and firmly imbedded in ovarian tissue. Both concretions are of the bright yellow color so characteristic of the recent corpus luteum. When cut across, it is seen that the calcific matter is deposited in tissue resembling soft leather in consistence. In another case Sutton received a cystic ovary as large as a child's fist, which contained in its wall a calcified body of the size and shape of an almond. The body is of bright yellow color and can be cut with a knife like the concretions in the first case. It consists of dense tissue impregnated with lime-salts.

Sutton arrives at the conclusion that these bodies are calcified corpora lutea. The drawing contained in Sutton's paper is very diagrammatic; the tubercles of the surface are drawn, but indistinctly.

In 1893, Whitridge Williams (*Amer. Journ. Obst.*, 1893, Vol. 28) describes a case which he diagnoses as calcified corpus luteum. The ovary is 5 cm. long, 2.5 cm. thick. No adhesions around it. In its centre is a hard mass, 12 mm. in diameter, of bone-like consistence. It consists, on section, of two portions, a soft pinkish central portion and a hard bone-like exterior which is 2 mm. thick, and of a distinctly yellow color. The central portion resembles a blood-clot in beginning organization. Decalci-

fied sections stain poorly, but the hard exterior of the nodule stains readily with hematoxylin, and presents a more or less homogeneous granular appearance in which it is impossible to distinguish any sign of nuclei. This is surrounded by more or less typical, ovarian stroma, which stains poorly. The soft centre-portion of the nodule is composed of dense fibrous tissue which is very poor in cells. Between this and the decalcified portion, we see several layers of small cells which possibly correspond to the *membrana granulosa*, though it is impossible to state their origin with certainty. In all probability the specimen represents a calcification of the large cells which surround a ripe Graafian follicle, and which form the yellow margin of the corpus luteum, while the fibrous tissue in its interior probably represents an organized blood-clot.

Slavjansky (Virchow's Arch., Vol. 51, p. 470) reports the following case: The ovary of a woman 71 years old was covered with very numerous and thick pseudo-membranes, and contained a concretion the size of a hazel-nut, which could easily be enucleated from the surrounding tissue. The concretion is round, 1 cm. long and 8 mm. thick, and contains a cavity. The wall consists of two strata; one internal mass, 1 mm. thick, firm and stained yellowish-brown by the preservation in chromic acid, and an external stratum, less firm, 0.5 mm. thick, and partially destroyed. A cheesy substance fills half the cavity. Microscopically, the cheesy mass contains detritus and fairly preserved shrunken red blood-corpuscles. The inner layer consists of very thick, glistening fibres, and a small number of spindle-shaped cells. No epithelium on the inner surface. The outer surface shows a high degree of fatty metamorphosis of the numerous cells which are larger than white blood-corpuscles, as well as the delicate fibres which are observed between the cells in small numbers. The neighboring ovarian tissue is old connective tissue with enlarged blood-vessels.

Slavjansky considers this a corpus luteum which has undergone cystic degeneration, and after having existed a long time has undergone regressive changes with deposition of lime-salts. The marked development of the yellow stratum, as it occurs only in the corpus luteum of the pregnant woman, points to a degenerated corpus luteum, not to any other cystic formation.

My three observations differ in some essential points from those

of Sutton and Williams, while my first case resembles closely Slavjansky's case. The size of the stones is of lesser importance, as it varies in my own observations from that of a cherry to almost that of a hen's egg. The configuration of the surface seems to be of greater importance for the explanation of the origin of these formations. Sutton compares the surface with that of a mulberry calculus. This comparison holds good in my cases only on the cross-section, the exterior outline of which indeed resembles that of a mulberry-stone. But on examination of the surface, it is seen that elevations and depressions are not arranged as in a mulberry, *i. e.*, round elevations surrounded by furrows. The surface resembles rather the convolutions of the brain, or as Morgagni describes it in a case apparently belonging here (quoted after Williams), the folds of the intestines. The corpus luteum is usually said to resemble a frill on a cross-section, and a cross-section will look very much like a cross-section of a mulberry. But, looking at the surface, we get a different impression. I have carefully enucleated a well developed corpus luteum from the ovary of case one, which showed the frill-like arrangement on the cross-section, and I find that the surface shows a configuration similar to that of the convolutions of the brain, or the coils of the intestines as they are seen on opening the abdominal cavity, not that of a berry. I consider this an important macroscopic sign.

The color of the stones was yellow in the cases of Slavjansky, Sutton, Williams, and in my case three, while this color was absent in my first two cases. So far as the yellow tinge is present, it speaks in favor of the origin of the stones in the corpus luteum. Where the color is absent we need not deny this origin, as it is well known that the yellow tinge is wont to disappear in the usual retrograde metamorphoses of the corpus luteum (*corpus candidans!*).

The stones vary in hardness, so that some can be cut with a knife, while others have to be opened with a chisel or a saw. This proves plainly that we have to deal with a tissue more or less impregnated with lime-salts, not with a deposit of salts in an empty cavity or in a fluid. It is not remarkable that the microscopic examination of decalcified pieces of the wall does not reveal any distinct structural picture, as the infiltration with lime-salts ordinarily takes place in tissues which have undergone degeneration,

preferably hyaline degeneration. Another point in favor of the opinion that we have to deal with some tissue infiltrated with lime-salts, is given by the fact that in all cases, excepting one of Sutton's, the stones are in firm connection with the surrounding ovarian tissue, as I could observe particularly well during the operation on my case three. This intimate relation between the stone and the ovarian stroma is additional proof that the stone has its origin in a component part of the ovary, and is not a calcification of the entire ovary for which it has apparently been mistaken in some older cases referred to by Williams. The shell of ovarian tissue which surrounds the stone may be so thin that the stone pierces it at some points naturally with the most prominent parts of the convolutions, as was especially plain in my case three. Sutton's case one forms an exception, as he says that the stone was located in a cyst. As, however, nothing is said about the wall of this cyst, it must remain doubtful whether he had to deal with a real cyst, or only a stone loosened from its surroundings.

After the stones have been cleft in two, the observation of the centre gives various results. Sutton's drawing shows a small cavity which is not mentioned in the description of the case. In Williams' case the stone contains a soft, reddish core. In Slavjansky's case and my three cases the stones are hollow shells which surround, in cases one and two, one simple cavity, while in case three a cavity varying in width, or rather two communicating cavities are observed. The wall of the cavity observed from the inner surface presents convolutions like those of the external surface, and like the inner surface of a corpus luteum. Besides, my cases show a membrane investing the cavity, which is in firm connection with the substance of the stone, and can be peeled off in small shreds. The wall is made smooth by this membrane, which follows closely the elevations and depressions of the convolutions. No epithelium could ever be found on this membrane. The membrane resembles soft leather very much. Sutton also compares the tissue containing the lime-salts with leather. However, neither Slavjansky nor Sutton nor Williams mentions this membrane.

The explanation of this membrane meets with no special difficulties if we reason as L. Fraenkel does in a recent paper on corpus luteum cysts (*Arch. f. Gyn.*, Vol. 56, 1898). The stones, as well as the cysts, described by Fraenkel, represent pathologic conditions



of the corpus luteum at various stages of its retrogressive metamorphosis. Fraenkel distinguishes three types of cysts.

Type 1: Innermost layer corpus luteum tissue (lutein cells).

Type 2: Innermost layer connective tissue.

Type 3: Innermost layer epithelium or endothelium.

All these types are produced by central softening of the corpus luteum at various stages of its metamorphoses. Type 2, with the innermost layer made up of connective tissue, is explained by central softening at a time when the stage of corpus fibrosum has almost been completed. In this stage the nuclei of the connective tissue have disappeared more or less. If infiltration with lime-salts were to take place at this stage, a condition very much like the one in my three cases would obtain. Williams' case, with the core, consisting of dense fibrous tissue poor in cells, is very important in this connection, because it proves one point which is especially important with reference to Fraenkel's work, namely, the fact that the infiltration with lime-salts is not necessarily dependent on the previous formation of a cyst. It is perfectly possible that the infiltration with lime-salts precedes the formation of a cavity, so that Williams' case possibly forms an early stage of such stones as were observed in my three cases. Softening of the core may occur in spite of the shell of lime-salts, if only this shell contains, as it did in our cases, sufficient remnants of organic tissue that the substance of the stone is not perfectly homogeneous. What we have to deal with, then, is the formation of a cavity in a calcified corpus luteum, not the calcification of a corpus luteum cyst.

Either one of these pathologic processes may occur, and we shall try now to find which of them can be supported by additional evidence.

The size of the stones is proof neither of the origin in a non-degenerated corpus luteum, nor of the origin in a corpus luteum cyst. Corpora lutea of the size mentioned occur, especially as corpora lutea vera. In my cases one and three, several pregnancies had preceded the operation; in case two, and in the cases recorded in literature, it is unknown whether pregnancy had preceded or not. But there are enlargements of the corpus luteum which occur without pregnancy, and lead to the formation of good-sized tumors which the older authors used to call "gyroma," on account of the convolutions of their surface. Through the kind-

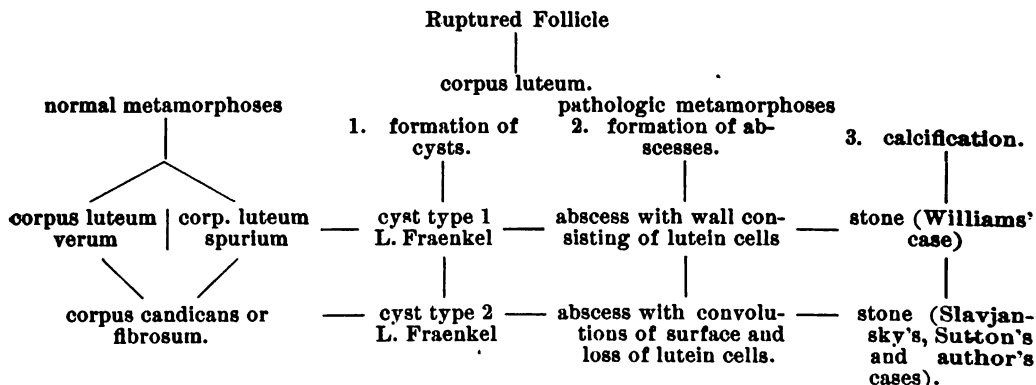
ness of Dr. Ludvig Hektoen, I have recently received such a specimen, which contains a tumor larger than a hen's egg, with convolutions of the surface. This tumor is surrounded by a layer of normal ovarian tissue about 4 mm. thick. Sections of the tumor showed nothing but thick layers of lutein cells, some connective tissue and unchanged blood inside and outside the numerous capillaries present in the tumor. The case was therefore nothing but a hyperplasia of the corpus luteum.

The convolutions of the surface of the stones resemble exactly inside, as well as outside, those of the corpus luteum. Cysts of the corpus luteum show macroscopically (Rokitansky), as well as microscopically (E. Fraenkel, *Arch. f. Gyn.*, Vol. 48), the tortuous outline of the inner wall of their cavities. But outside, these cysts have a smooth wall, especially where they approach the surface; at any rate, they are less tuberculated than the stones are, even at the points where they reach the surface. This I consider a further point in favor of the opinion that the stones may take their origin in corpora lutea without preceding cystic degeneration.

The scanty contents of the cavities in my cases show nothing of importance. It might be important to find out which is the layer of the corpus luteum which undergoes the impregnation with lime-salts. But direct microscopic examination of decalcified pieces enabled neither Williams nor myself to arrive at the desirable certainty, as decalcified parts revealed no clear cellular structure. The examination of the tissue surrounding the stone revealed normal ovarian tissue. If some corpus luteum structure had been found, the layer which had undergone infiltration with lime-salts might then be found by a sort of subtraction. The fact, however, that the outlines of these shells resemble so closely those of the stratum of lutein cells, points strongly towards this stratum in its original or degenerated (especially hyaline) form as the seat of the calcification. It must be remembered here that after the disappearance of the lutein cells, the hyaline tissue of the corpus candicans keeps up the configuration of the lutein layer outside as well as inside. As far as I know, no corpus fibrosum has ever been described containing a cavity at all approaching the size of those described here, while corpora lutea of this size, with a wall consisting of lutein cells, and a core made up of newly-formed connective tissues, fibrin, and vests of blood, are observed

frequently. For instance, the ovary of case one contains such a corpus luteum the size of a cherry. Going from outside towards its centre, we find in it a well-developed layer of lutein cells, then, first firm, then loose connective tissue, and in the centre a fibrinous thready mass with some well-preserved red blood-corpuscles, as in the cavity of the stone of case one. Macroscopically, this fibrinous mass looks like a light jelly. Infiltration of the lutein cells with lime-salts would produce a condition very similar to that of the stone in the same case. Let us suppose that this jelly-like mass becomes a little more liquid, and we come to a point where it becomes impossible to say whether we have to deal with a soft corpus luteum, or with a corpus luteum cyst.

After all this we arrive at the conclusion that undoubtedly these shells can take their origin in simple corpora lutea, but that we cannot entirely repudiate their origin in corpus luteum cysts. What has been said here concerning cysts of the corpus luteum holds good also with regard to abscesses of the corpus luteum, or suppurated corpus luteum cysts. The combinations of successive degenerative conditions may vary. It is possible to give a diagram of their development in the following way:



As we have to deal here with shells in some connection with the ovum, the question of an atavistic formation might be raised, only, however, to be dropped at once, as the formation of the egg-shell is not a function of the ovary, even in birds. Lastly, there is absolutely no reason to believe in the origin of these stones in tumors—for instance—dermoids.

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A CASE OF UTERUS BICORNIS, DUPLEX AND VAGINA DUPLEX, WITH PREGNANCY IN ONE HORN; EXCISION OF VAGINAL SEPTUM; NORMAL LABOR.\*

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Mrs. M. B., 26 years of age, married 10 months, nullipara, presented herself in November, 1895, for examination. She stated that menstruation began at the age of fourteen, was always regular and normal, but attended with great pain. She had enjoyed sexual intercourse during the first few months of her married life, but of late the act had become painful. This and an annoying vaginal discharge were the only complaints which she had to make.

On examination the vagina was found to be narrow. The uterus was retroposed, slightly anteflexed, deviated to the left and apparently normal in size. Springing from the right side of the uterus at about the junction of the cervix with the uterine body, a hard, oblong tumor could be felt, which was fairly movable, and about two inches in length, and one inch wide. This tumor, which made the impression of a small fibroid, passed laterally to the right and formed with the uterus, an angle of a little over ninety degrees. The left tube and ovary were normal. The right appendages could not be palpated.

Directing again my attention to the apparent growth, and examining its relation to the cervix, I found that the latter was almost immovable. Its vaginal portion did not project freely into the vagina, and seemed on the right side to be firmly attached to the vaginal wall; the finger could not be passed around it. In the attempt to lift the cervix by pressing against its lower extremity, I felt through what I believed to be the vaginal wall, a

\* Read before the American Association of Obstetricians and Gynecologists at Pittsburg, Pa., September 20-22, 1898.

small aperture, which, apparently, was a second external os. At once the thought flashed upon me that I had to deal with a malformation of the reproductive organs. Separating the labia, I began to search for a second vaginal orifice, which was found almost under the pubic arch,  $\frac{3}{4}$  of an inch to the right of the urethra. Through this opening, which ran in an oblique direction, and was about  $1\frac{1}{2}$  inches long, the finger passed into a second vagina. Originating from the cervix, the septum terminated a third of an inch above the hymen, and divided the vagina into two halves, of which the left was the larger. Both cervixes were firmly united up to the internal os. The oblong body on the right side of the uterus proved to be the right horn; its adnexa seemed to be normal. The left uterine cavity measured three inches in length, the right one two and one-half inches. The presence of a double vagina, and of two complete uteri, and the fact that both cervixes were firmly united in their entire length demonstrated the case as one of uterus bicornis duplex.

I explained the condition to the patient, and advised the excision of the vaginal septum. Operation was refused; the consent of the husband could not be obtained.

I saw the patient again July 27, 1896. She had not menstruated since the beginning of March, and believed herself to be pregnant.

Examination showed that impregnation had occurred in the left uterus, which was enlarged, its fundus being half way between the symphysis pubis and the umbilicus. The right uterine horn was unchanged. As the vaginal septum was a thick and firm structure, I again recommended its removal, fearing that it would delay labor by seriously interfering with the dilatation of the cervix. The patient consented. I excised the vaginal septum and united its edges with a continuous catgut suture.

The patient went on to term and was delivered December 10, 1896, by Dr. A. F. Gentry of Pittsburg, who kindly informed me that labor was short and normal. She again conceived, and had a normal labor November 15, 1897.

The interesting features of the case are the rarity of this form of malformation of the generative organs and the difficulty of the diagnosis. The fact that the vaginal septum formed a sac, closed at the introitus vaginæ, and the unusual location of the orifice which led into this sac, and was a mere slit, scarcely admitting the index finger, rendered the diagnosis difficult.

I have not discussed the etiology of the uterus bicornis duplex, as every text-book gives a satisfactory explanation of this rare and interesting anomaly.

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## THE CONDITIONS OF THE GENITAL ORGANS WITH REFERENCE TO VAGINAL HYSTERECTOMY FOR EPITHELIOMA UTERI.

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In a recent paper read before the Section of Gynecology of the Suffolk District Medical Society (Remarks on the Pathology of Epithelioma of the Uterus with Reference to Operative Interference, Boston Medical and Surgical Journal, June 23, 1898), the writer considered the operative indications of epithelioma of the uterus, looked at from a pathologic standpoint, and in this short contribution, he desires to consider the indications furnished by the condition of the genital organs, and will begin with that of the uterus.

A cancerous uterus may be found either in an otherwise physiological condition, pregnant, or complicated by some pathologic condition, such as displacement, the presence of a neoplastic formation (other than epithelioma), or an inflammatory process.

The relation between pregnancy and epithelioma of the cervix forms one of the most interesting chapters of obstetric science, but this belongs more to the accoucheur than to the surgeon, and we will only briefly indicate the conduct that should be adopted by the latter under these circumstances. A pregnancy, complicating cervical cancer, gives rise to particular indications that are rather difficult to determine, because in this case it is not only the patient's life that is to be prolonged, but we should endeavor to bring to the world a viable fetus, if possible.

Two cases must be considered, viz., whether the uterus can or cannot be removed per vaginam, on account of its size. In the first instance, the condition is only present during the first half of gestation, and vaginal hysterectomy is possible on account of the considerable laxity of the vaginal tissues. Consequently, if the neoplasm is limited in extent, the uterus should be removed and the child sacrificed.

If the neoplasm has extended so far that hysterectomy will be of no avail, local and general medical treatment is all that can be done. If it is supposed that pregnancy may go to term, if there is no pelvic tumor or induration of the vagina or cervix which would render labor difficult, the disease must be let alone, the patient's strength being sustained by suitable tonics, vaginal irrigations frequently and freely used, and proper dressings in cases of serious symptoms, such as hemorrhage, etc. On the other hand, if the life of the woman is in danger on account of a long and difficult labor, produced by a neoplastic infiltration of the vagina and cervix, it is proper, we think, to produce artificial labor.

On the other hand, if the uterus cannot be removed per vaginam, without removing its contents, two different conditions may present themselves, according to whether the disease is small in extent and can be removed, or on the other hand, has reached so far that only palliative treatment is indicated.

In the latter condition, a symptomatic treatment to bring pregnancy to or near term is all that can be done. If we are dealing with one of these infrequent cases where the uterus is of considerable size, and the neoplasm at its commencement, so that a radical cure may be hoped for, operative interference is called for. According to the conditions present, we may (1) induce labor, and after a few days do a vaginal hysterectomy; (2) Cesarean operation, followed by a colpo-hysterectomy; (3) supra-vaginal hysterectomy, followed by immediate vaginal extirpation of the remaining cervix; and (4) total abdominal hysterectomy of the pregnant uterus.

We will only mention inflammatory processes of the uterus which so often accompany carcinoma of the organ, be they consecutive to, or have been present before the neoplasm, as they are radically cured by hysterectomy, and do not greatly increase the difficulty of the operation, nor make the prognosis more serious.

The same may be said of displacements of the uterus, or prolapsus of the genital organs; the latter condition, of course, renders the operation much easier, but it also increases the danger of hemorrhage.

The bearing on carcinoma of the cervix of uterine neoplasms, which in most instances are fibromata, is very different, and is a subject for much debate. The coexistence of a fibroid and a carcinoma of the cervix is not an infrequent condition to find, and when a woman who is under treatment for a fibroid presents fetid discharges and severe hemorrhage, an epitheliomatous invasion of the endometrium is to be suspected.

Although, as yet, the transformation of a fibroid into epithelioma has not been distinctly demonstrated, an invasion of the fibroid by an epithelioma is now a well known fact, and the non-malignant neoplasm may be the factor in the causation of an epithelioma, developing in the neighboring uterine mucosa.

It has been shown by Schroeder that in a considerable number of cases, the chronic inflammation of the endometrium due to the presence of the fibroid first sets up a proliferation of the glandular structures. This process passes from the typical adenoma to an atypical form, namely, epithelioma. So, if a fibroid cannot in itself give rise to carcinoma, it can at least provoke it by means of the endometrium, and in such a case, symptomatic treatment should never take the place of radical operation.

Cases of coexisting fibroma and carcinoma of the uterus are to be treated by hysterectomy under certain conditions, which are the general indications for hysterectomy for fibroid, that is to say, the vaginal or abdominal route must be chosen according to the size of the fibroid. Vaginal hysterectomy for cases of fibroid coexisting with epithelioma, is only rarely indicated, but if the non-malignant neoplasm is small, the vaginal route will give fewer chances of infecting the wound with carcinoma.

We now come to the consideration of the conditions presented by the adnexa and the great frequency of epithelioma of the cervix during the period of genital activity of the female might lead one to suppose, *a priori*, that the coexistence of the latter with a pathologic condition of the tubes or ovaries is frequent. But such is not the case. The lesions of the ovaries that have been most commonly met with are secondary carcinomatous deposits and inflammatory lesions.



Secondary carcinomatous deposits within the ovary probably take place by the lymphatic system, and when once arising in this gland, they have a marked tendency to extend to the neighboring organs, viz.: broad ligaments, tubes, bladder, while at the surface of the diseased ovary, fibrous exudates and hemorrhages arise, which bind the intestine and peritoneum to the organ, and metastatic deposits extend to them.

The presence of carcinomatous metastasis in the ovaries is an absolute contra-indication for either vaginal or abdominal hysterectomy, because it is a certain indication that the neoplasm has extended far beyond the limits of the uterus, and even if a radical operation were undertaken, there would be great danger from intestinal adhesions. Unfortunately, the diagnosis is difficult and requires a careful examination under narcosis, but it should always be done, because it is about the only lesion of the ovaries that is a contra-indication for hysterectomy.

Ovarian cystoma have been present in cases of cervical carcinoma, and in no way contra-indicate radical interference. If the ovary is cystic, but only slightly increased in size, the vaginal route is to be preferred, because ovariectomy is then a simple matter. When the cyst is larger and unilocular, with not very thick walls, the cyst may be aspirated after the uterus has been removed, and then the pedicle is tied off and the cyst removed. But such cases will be found to be the exception, puncture being difficult on account of the thickness of the cyst walls, and the tumor must be removed through the abdomen, when a total hysterectomy can be done at the same time.

Inflammatory and suppurative lesions of the ovaries, as well as those of the tubes, and also inflammatory infiltrations of the parametrium are no contra-indication to vaginal hysterectomy for carcinoma of the cervix, but here we must bear in mind that what may be taken to be an inflammatory lesion of these organs, may be malignant instead. Inflammatory infiltrations can be differentiated from the neoplastic type in that they are more elastic and supple, and still more inflammatory infiltrations, even when they are of recent occurrence, are rarely very extensive, while in the case of carcinoma they are hard, diffused, and invade almost the entire pelvis. In order to ascertain all these physical conditions, a combined rectal, vaginal and abdominal palpation is necessary under a complete narcosis.

A narrow or tight vagina may be an obstacle to vaginal hysterectomy, in which case the abdominal route must be employed, but two lateral incisions carried deeply into the cellular tissue will often give quite enough room to work with ease.

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## INVERSION OF THE PUERPERAL UTERUS.

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INVERSION of the puerperal uterus consists in the substitution of the inner for the outer surface of the organ, and may be complete or incomplete, and the latter may exist in various degrees. With complete inversion there may also exist an inversion of the vagina with prolapse, which may allow the inverted uterus to escape from the vulva. In the partial, or incomplete, form the body of the uterus is partly inverted, or the body may be wholly inverted, but not the cervix. In the complete variety the corpus and cervix are both inverted.

*Causes.*—(a) Predisposition. Gustav Braun observed spontaneous inversion twice in the same woman after delivery of the placenta, which would seem to indicate a predisposition in some uteri to become inverted with no other apparent exciting cause. This may be aided by pressure of the intestines from above, as pointed out by Büchler, the uterus being in a condition of extreme flaccidity until the beginning of the inversion is thus established, which becomes active inversion according to Duncan and Spiegelberg, when the uninverted portions contract and propel the inverted portion downward. In a case reported by I. E. Taylor (17), there appeared to be a continuous, persistent contraction of the corpus and fundus uteri which seemed to unfold the cervix from below upward, thus apparently first inverting the cervix, which allowed the body and fundus to pass downward through the cervical canal, and thus the entire organ become inverted. (b) Atony of the uterine muscle may be the underlying cause, either with or without predisposition, which allows a sinking in or cup-

ping of the fundus, or a portion of the corpus uteri; associated with this atony of the uterus is, (c) irregular contraction of the fundus, forming a contraction ring around such cup-shaped depression, which forces the relaxed portion in the direction of the uterine cavity and cervical canal. As directly aiding this process of inversion thus established, a fourth causative factor often comes into play, viz., traction on the cord before complete separation of the placenta; this cause may follow those already mentioned, or it may simply be associated with atony of the uterine muscle, without which, as a precedent condition, traction on the cord cannot produce uterine inversion. Cases of complete inversion from this cause are reported by Crommelin (1), by A. Boodle (2), and by Hirst in 1893. Traction upon a short cord, though unavoidable during delivery, has produced inversion in a case reported by W. Hutchinson, in which the cord was 23 centimetres in length.

*Time of Occurrence.*—Inversion of the puerperal uterus may occur immediately at the end of the second stage, as in the cases reported in 1888 by Arthur Jefferson (11), by N. Guhman (12), and by Walter Hutchinson in 1890. In Gustav Braun's cases it occurred after delivery of the placenta, while in a case reported by Carlo Decio (7) in which delivery was instrumental, accompanied by severe hemorrhage, inversion occurred after eight days, and was followed by septicemia. Inversion may also occur after posthumous delivery, as in a case reported by Isaac E. Taylor (17). But the most frequent time of occurrence in reported cases is at the end of the second stage of labor, during some form of effort to deliver the placenta, or when the cord is unusually short. There may also be a recurrence of the inversion after complete reduction, as in the case of W. Huber (15), which afterward terminated fatally from metritis and septic infection (peritonitis).

*Symptoms.*—The chief symptoms of complete uterine inversion are (a) collapse, and (b) hemorrhage. The woman suddenly becomes blanched, the surface of the body cold, with clammy perspiration, gasping respiration; she complains of darkness before the eyes; the pulse becomes extremely weak, very rapid or imperceptible; sudden and profuse loss of blood occurs. This hemorrhage may come in spurts, owing to the gradual turning out of the organ, or to the alternate relaxation and contraction of the cervical

ring, through which the fundus and corpus uteri have already made their escape; thus there may be repeated hemorrhages. This will not occur in cases in which the inversion is not preceded, or accompanied, by detachment of the placenta.

*Dangers.*—Inversion may be attended by shock and hemorrhage, either of which may prove fatal, as in cases reported by Bissett (4). The imprisoned portion, if left unreduced, may slough off from strangulation. Infection may occur from careless manipulation, or accidentally, as in a case reported by Noble (5), which developed tetanus on the seventh day, dying on the tenth day. The inversion is liable to recur after reduction, as in a case reported by Gordon (8). Occasionally there may occur strangulation of intestinal loops in the cervical contraction ring, as in a case related by Girard. Acute anemia of dangerous type may result, as in a case reported by A. Bergman (16), which was overcome by injection of normal salt-solution.

*Frequency.*—There are no conclusive statistics as to the frequency of its occurrence. Winckel, in over 20,000 labors, had not seen a case of complete inversion. Denham saw but one case in 18,000 labors in the Rotunda Hospital. Still Kehler states it as probable that inversion occurs once in 2,000 labors. It is probably more frequent than formerly supposed.

*Complications.*—Intestinal complications may prove fatal, as in the case reported by Newton Benson (6), which had been easily reduced. Prolapsus of the inverted uterus, more or less complete, favors hemorrhage and sepsis, and renders reduction more difficult, as in Huber's (15) case. Into the funnel-shaped cavity formed above by the inversion of the fundus lined by peritoneum, may enter the Fallopian tubes, the ovaries, the ovarian, round and broad ligaments, and portions of the intestines or omentum. The walls of this funnel-shaped opening may grow together, including these appendages and structures named, and prevent their removal, and also the proper reduction of the inversion. Such a case is reported by Svenson (18), in which he amputated the uterus after three months, and found both ovaries, tubes and broad ligaments.

*Diagnosis.*—The diagnosis is easily made if the placenta is still attached. If the placenta is completely detached, the inverted uterus has been mistaken (a) for the head of another child, (b) for the placenta itself, (c) for a polypus. The following points will

establish the diagnosis: (a) The fundus cannot be felt through the abdominal walls. (b) A cup-shaped depression may be felt instead of the fundus. (c) A tumor is found in the vagina, with a groove around its insertion, which is central, while in case of polypus, insertion is lateral. (d) The mucous membrane of the inverted uterus is sensitive, while that of the polypus is not. (e) Where prolapse of the uterus and vagina has taken place, a tumor is found at the vulva. Of course, where the inverted organ is found outside the vulva, the diagnosis is made, but in cases in which such prolapse has not occurred, the diagnostic points must be carefully considered to avoid possible error.

*Treatment.*—This must consist in prompt reduction of the inversion under as thorough asepsis as possible. The necessarily extensive manipulation renders this of extreme importance. Spontaneous reduction of the completely inverted uterus has been observed by Spiegelberg, Büchler, Thatcher, Meigs and Shaw. The reduction is best accomplished by reversing the process by which inversion occurred, that is, by returning first the parts which came down last; hence the entire inverted portion is grasped as firmly as possible and pushed upward, alternating the pressure first on one side, then on the other, thus reinverting the cervix, then the lower uterine segment, the corpus and fundus uteri, the entire organ being thus returned to its normal position in the reverse order to that in which it was inverted. If the reduction is prevented by spasm of the lower uterine segment, we may wait for it to relax, if no serious hemorrhage is taking place, otherwise it may be necessary to tampon, and anesthetize the patient and cause the spasm to relax, when the reduction may be accomplished. To prevent the recurrence, intra-uterine irrigation with some hot antiseptic solution should be practiced. The reduction by taxis as described, aided and accompanied by hot irrigation during the reduction, was practiced in a case reported by George E. Fell (14) in 1890.

Reduction under hypnotic suggestion was practiced by A. Bergman (16).

*Report of Case.*—On June 27, 1897, I was called to attend Mrs. B., a primipara.

The woman was strong, healthy, and about twenty-four years old, and had been in labor eighteen hours before I saw her at the end of the first stage. I found a vertex presentation in first po-

sition. In an hour the membranes had ruptured, and the case was fully in a second stage, when she began to show signs of exhaustion, and beg for relief. This I gave her with chloroform-anesthesia, and instrumental delivery, which was exceedingly difficult, occupying one hour, but being successfully accomplished, with a living child and no laceration. The placenta was expressed in fifteen minutes; the uterus contracted well and maintained its contraction, being carefully watched for nearly an hour, when it was left for a few minutes to attend to dressing the baby's navel. Suddenly the woman began to gasp, and said to her mother, "I am dying." Coming quickly to the bedside, I found her in collapse, with severe hemorrhage; and a rapid examination showed me her condition, the uterus absent above the pubes, a large tumor in the vagina. The woman was now unconscious from loss of blood, and what was to be done must be done quickly. I applied taxis, as before described, with counter-pressure above, and in a few minutes accomplished the reduction. The uterus, however, failed to contract, remaining relaxed and flabby, and on withdrawing my hand, the inversion seemed about to recur. Intra-uterine irrigation with hot sterilized water was immediately done, the hand being kept in the uterine cavity until firm contraction, which occurred very quickly on the introduction of the hot water. The patient was still in collapse, unconscious, and in a condition of acute anemia. To overcome this latter condition, a large quantity of sterile normal salt-solution was thrown into the rectum and descending colon, and a considerable quantity—about a pint—injected subcutaneously, as well as hypodermatic injections of strychnine being given. After five hours' work, I had the satisfaction of seeing the patient regain consciousness, after which she made an uninterrupted recovery. She is in good health at the present time. In this case the uterus was entirely empty, had contracted well, and maintained its contraction for nearly an hour, during which time it was carefully watched. I have attributed its sudden relaxation and inversion, to the exhaustion of the uterine muscle due to the prolonged labor, difficult artificial delivery, but still more to the action of the chloroform upon its ganglia, and consequently upon its nerve-supply, this disturbance of the nerve-force causing relaxation, or inertia, of the lower uterine segment and irregular contractions, which produced the inversion.

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## SOCIETY REPORTS.

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SOME CLINICAL OBSERVATIONS BASED UPON THE 116 ABDOMINAL  
SECTIONS FOR OVARIAN TUMORS\*.

X. O. WERDER, M.D.

UNDER this caption, the author reports his complete series of such operations done at Mercy Hospital, Pittsburg, presenting clinical observations of more than ordinary interest, and reviewing some of the rarer complications met with in these cases. He considers that the technique of such operations has well nigh reached perfection, the only points permitting of discussion being flushing and drainage. Reference to his tables shows that in his early work, both were used in the majority of his cases, while later they were less frequently employed and have been almost entirely abandoned during the last two or three years.

Irrigation he never employs, except, occasionally in cases of ectopic gestation with rupture, in which it removes the blood speedily and by being left in the cavity, sterile, hot, decinormal

\*Original abstract of paper read before the American Association of Obstetricians and Gynecologists at Pittsburg, Pa., September 20-22, 1898.

salt solution, relieves shock and is rapidly absorbed replacing the blood that has been lost.

Drainage is reserved for cases in which profuse oozing cannot be controlled; in which raw surfaces are too extensive to be covered by peritoneum; and in which intraperitoneal abscesses cannot be thoroughly enucleated, as in some cases of appendicitis (careful and thorough temporary packing by gauze pads is relied upon to prevent contamination of peritoneum during enucleation). The glass drainage tube has long since been discarded. The indications for drainage are best met by gauze packing conducted into vagina, which has the aid of gravity, and does not interfere with the complete closure of the abdominal wound. Since adopting this course, "deep sinuses and fistulæ have become practically unknown, and our results have become better and more satisfactory in every respect." Two dangers from the use of extensive intraperitoneal dressings of iodoform, must not be lost sight of, however, viz: Iodoform poisoning, and poisoning from the yellow iodide of mercury when calomel is administered internally during the use of such dressings (as pointed out by Simpson).

The total of nine deaths, a mortality of 7.8 per cent, includes three cases of malignant tumor that seemed operable after exploratory section, but presented almost insuperable difficulties during enucleation; two cases of suppurating cysts, dermoid and oöphoritic respectively, the walls of which were almost gangrenous, tearing to pieces, much fetid pus unavoidably pouring into peritoneum, which was not as thoroughly protected then as now. One weak old patient, in bed five or six weeks from torsion and resulting peritonitis, who died forty-eight hours after operation; one feeble patient of sixty-seven years, with enormous tumor and universal adhesions, who developed pneumonia the fifth day and died three days later. These seven deaths he considers unavoidable. Two others he thinks, admit of some question. One operated upon during an acute attack of peritonitis had universal fresh adhesions; she died seventeen days later and two quarts of pus were found free in the peritoneal cavity. Whether infection occurred prior to, or during the operation, is not known. The other died from hemorrhage within the first eight hours, during which time he was out of the city. "Both these deaths occurred during my early cases, which, however, is



scarcely an excuse, as prompt interference might have saved their lives."

The following varieties were met with: Ovarian cyst (oöphoritic and paroöphoritic), 74; Parovarian cysts, 12; Dermoid cysts (bilateral 1), 10; Fibroid of ovary, 1; Carcoma of ovary, 5; Cancerous tumors, 13; with complications as follows: Torsion of pedicle, 12; Rupture of cyst, 6; Appendicitis, 4; Suppuration of cyst, 2; Tubercular salpingitis, 2. Under Axial Rotation he gives cases, illustrating the facts that acute torsion may occur without any accompanying symptoms suggestive of that condition; that torsion of small right ovarian cyst may present symptoms typical of suppurative appendicitis; that ovarian cysts accompanied by appendicitis present symptoms closely simulating torsion of pedicle, a fact which no one has hitherto pointed out. Rupture is caused by external violence or spontaneously as in Papillomata. The usual symptoms noted were more or less shock; some inflammatory reaction, at times violent; very rapid and at times enormous increase in fluid (reaching 118 pounds plus sac, 5½ pounds, in one case); thickened peritoneum is frequently covered by a whitish, sticky substance, not unlike the vernix caseosa of the new-born, and at times the fluid is more or less completely imprisoned in a sac formed by adventitious or pseudo membranous tissue. Suppuration of cystic contents usually results from extension, from adjoining structures, and causes the usual symptoms of pus concealed elsewhere in the body. Tubercular salpingitis and peritonitis complicating cysts were met with twice, one patient died within a few months from miliary tuberculosis. The other is well three years after operation.

Considerable space is devoted to malignant ovarian tumors. Their frequency according to Olshausen is 15 per cent, Cohn's report of Schroeder's clinic, 16.1 per cent; Fritch, 18 per cent; Leopold, 22 per cent. The author has had 18 cases of completed operation and seven (not included in tables) exploratory sections, or 20.3 per cent of reported cases. The actual percentage, however, is much higher, as he has seen many cases of malignant ovarian tumor too far advanced to permit of any operative procedure. This high percentage of malignant tumors, coupled with the fact that the majority of them are likely benign in the beginning, renders it imperative to operate without unnecessary delay, upon all ovarian tumors.

"While the treatment of ovarian tumors in general is no longer a matter of dispute, the *unanimity* of opinion does not exist in regard to malignant tumors. Most authorities discourage operation on account of the great mortality and the almost certain recurrence of the disease. These are the opinions held by such *recognized* authorities as Spencer Wells, Keith and Olshausen. Our newest works dismiss the subject with a few lines not at all encouraging for operative treatment. Within the last few years, however, a more hopeful view of the subject has been gaining ground. Schroeder's results in a hundred operations for malignant tumors, reported by Cohn, probably brought about this change. His operative mortality was 20 per cent; of the cases recovered, 15 per cent soon afterwards succumbed to the disease, but 19.5 per cent were still living at the end of the first year and in five the cure was maintained for from 3 to 4½ years. Leopold and Fritch more recently reported equally good results, so that the pessimistic views held in regard to the treatment of malignant neoplasms of the ovary seem scarcely tenable at the present time.

"A review of my own cases shows a mortality of 3 or 16.4 per cent from operation. Of the fifteen surviving patients, one is still at the hospital convalescing from the operation, one has not been heard from since her discharge from the hospital; two have died from the disease within three or four months; three within five or eight months; one is well at the end of six months; one at eleven months; one at the end of a year; one after eighteen months; one after twenty-two months; one after two years; one after three years; one after three years, two months. Another patient died three years after operation from a return of the disease in pelvic and abdominal walls. The most favorable prognosis in my experience has been offered by the sarcomas, as none of them have so far had a recurrence.

"The fact that three or 20 per cent, of what seemed to be the most unpromising cases of carcinoma of the ovary have survived three years after operation, and that two of these are still in good health, seems to be the best argument in favor of operation in all malignant tumors, as long as their removal seems possible. Abandoning a case as hopeless, after an exploratory incision has demonstrated the malignant character of the tumor, is, in my opinion, unjustifiable, unless we have convinced ourselves of the inoperability of the tumor. I wish to emphasize this statement

for the reason, that what may appear to us clinically as an undoubtedly malignant tumor may not be cancerous at all."

He illustrates this fact by a case that presented a typical clinical picture of malignant ovarian tumor. Section showed pelvis filled with and pelvic walls and intestines adherent to cauliflower mass that bled freely to touch. Case regarded as hopeless and closed. Two years later she returned in better condition in every respect, except tumors larger. Section, cauliflower appearance absent, tumors which had coalesced, removed. Much hemorrhage; good recovery. Microscope showed non-malignant papillomata.

He thinks Ovariectomy will ever be of interest, as the mother operation of abdominal surgery, of which it constitutes a very small part now, however, being much less than 20 per cent in his own experience.

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ABSTRACT OF DR. INGRAHAM'S PAPER — SOME FACTS IN REGARD TO  
UTERINE FIBROIDS.\*

He said, that, although several ingenious theories had been advanced, nothing was known in regard to the etiology of uterine fibroids. Although their growth was usually slow, that sometimes they developed rapidly. Occasionally they disappeared spontaneously. He mentioned two cases that developed rapidly after the cessation of menstruation, and removal of the growths became necessary. Also, one case in which the growth disappeared spontaneously.

He believes that malignant degeneration may occur, but that it is too infrequent to receive much consideration as a reason for operation. He has seen calcification, which is very rare, and suppuration in the same tumor.

The complications which accompany fibroids are quite numerous, and many of them serious. Among them are fatty liver, probably due to changes in the portal circulation; diseases of the kidneys, such as pyelitis, pyelonephritis, and hydronephrosis, due to pressure on the ureters, are quite frequent.

But the most frequent of all complications are lesions of the heart. One of the reasons given for their occurrence, viz., "increased vascular pressure," may deserve some consideration; but

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he believes the chief cause of heart lesions is due to the anæmic and cachectic condition induced by the excessive loss of blood which occurs in many cases. He looks upon menorrhagia and metrorrhagia, as among the most dangerous symptoms of uterine fibroids. If these symptoms cannot be controlled by palliative measures, such as tonics, curetting, electricity, the thyroid extract,—and in most cases the writer has little faith in any of these,—the removal of the growth becomes necessary. If it can be done by myomectomy, it should be; but if this operation is not feasible, then hysterectomy, either abdominal or vaginal, as the operator may select, should be performed. If complications have not occurred, he looks upon the removal of the fibroid as a comparatively safe operation.

In all cases of uterine fibroids, even those without any pronounced symptoms, the patient should be carefully watched and complications prevented by removal of the growths if necessary.

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TREATMENT OF GRANULAR EROSION OF THE CERVIX BY LIGATION OF THE CERVICAL VESSELS.\*

D. TOD GILLIAM, M.D.

IN glancing over my life's work, I cannot recall a single instance in which I was able to effect a cure of granular erosion of the uterine cervix by the application of medicines. In speaking to others I find that their experience tallies with my own. About three months ago I had a very aggravated case in a virgin, and as usual was making little or no progress. I asked myself: "Why is it that these cases are so intractable?" I began to cast about for some more effective method of treatment, and, as a preliminary, recast the more prominent pathological features of the underlying morbid condition. These are, as you all know, hyperemia, and frequently, hyperplasia from venous stasis, a weeping surface and epithelial exfoliation. Here were conditions that simulated in many respects the ordinary ulcer. The most effective treatment for an ulcer is systematic and continued compression by adhesive straps or bandage. This method as applied to the cervix uteri I found to be impracticable, or at least too troublesome for general adoption. I then thought of ligation of the cervical vessels. This

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was feasible, easily and quickly accomplished, and in the married could be done at the office without the aid of an anesthetic. I also remembered, that in some of my trachelorrhaphies I had seen granular erosion of the vaginal surface of the cervix disappear after the usual ligation and suturing incident to the Emmet operation. I have had but three cases since hitting upon this method. These were respectively 23, 18 and 21 years of age. The first and last were primipara; the other, nulliparous and syphilitic. In both cases of the married women, the erosion extended some distance beyond the margin of the tear. In case one, the erosion was quite extensive. I ligated the vessels on either side at the cervico-vaginal junction, and allowed the ligatures to remain eleven days. On removing them, I found that they had cut deeply into the cervical tissues. The erosion had disappeared completely. In my second case, the virgin (?), I removed the ligatures on the fourth day, hoping to avoid the pressure atrophy which had occurred in the first. There was no appreciable improvement in the erosion and I was greatly disappointed. At the suggestion of a medical friend, I kept this patient three weeks in the hospital and then examined her again. The erosion had disappeared, all except a small crescentic margin at the entrance of the canal not to exceed a line in width, and this was so indistinct as to be scarcely perceptible.

My third case suffered a lacerated cervix in the act of dilatation preparatory to curettage, an accident that I have had occur to me only once before. The sutures were introduced, and a ligature on either side. At the end of a week the ligatures were removed, at which time there was little evidence of benefit to the erosion. At the end of three weeks the sutures were removed, when the erosion had disappeared, with the exception of the little crescent, as in the second case. Notwithstanding the uniformly favorable results in the cases reported, and the fact that heretofore I have been utterly unable to cure granular erosion of the cervix, I am still on the anxious seat with reference to this method, and shall be, until, after extensive trial, it has proven efficacious or futile, as the case may be. Should any of my confrères choose to make a trial of the method, I shall be pleased to hear of the results.

Columbus, Ohio.

## EDITORIAL.

IN these days, all physicians are making more and more a careful study of dietetics. Whether they use little or much medicine, all; agree on the great importance of the food given the patient. More than this. With the increase in the attention given to preventive medicine, it was early found that the food furnished one great inlet for the invasion of the system by germs or source of irritation to the membranes lining the alimentary canal. Taking these two lines of thought and applying them to the care of infants and children, well or sick, we find ourselves in great part limited to a discussion of milk. And to a consideration of the proper chemical composition, preparation and method of administration, every text-book pertaining to children devotes many pages. Curiously enough, however, we see but little attention paid to the cow, the source of food. True, she must be kept in clean, airy stables, when housed, must not be fed on distillery waste, and must not be tuberculous. But there the interest stops. Every now and then we are startled to hear that nearly every cow in a large herd, supposed to be all right, has been found by the inspector to be tuberculous. Or occasionally a case of tuberculosis in a child is traced to a cow or herd which is then discovered to be diseased. But in general, the public only knows that the milk comes from farms, it may be 75 or 100 miles distant. The milk inspectors of our city governments, or of the large milk companies, determine that the specimens examined contain a certain per cent of fat or solids, and decide that therefore it is fit for food, or what price may be paid the farmer for it. The physician who is asked to examine a specimen to be used as the baby's food, too often concerns himself only with whether it seems fairly fresh to taste and smell, and shows a fair amount of cream on the top.

Is this enough, or are there other elements entering into the composition of the food given a baby which are not so readily determined by chemical analysis or arranged by formulas? In this consideration we have been greatly interested in the two books by Dr. Brush, noticed in our Book Reviews. Since read-

ing them we have learned that the suggestions advanced by him are many of them put into practice by the Walker-Gordon people of Boston, and we doubt not the same is true elsewhere. We cannot here go into the matter in detail. The little books are inexpensive and will well repay the investment.

Dr. B. believes that much of the illness of infancy finds its true source in variations in the quality of milk taken as food. How often have we known the pet Jersey or Aldernay cow kept for the purpose largely of furnishing an abundance of rich milk "for the babies!" It is something of a shock to learn that these prize cows with a pedigree as long as one's arm are very prone to tuberculosis, and that the safest cows are the common red, coarse-limbed cows seen on every hillside.

Fortunately in our great country this common breed is by far the most abundant in numbers, so that there need be no difficulty in finding a suitable source of supply if we will only take the pains. But a suitable cow must have suitable food and care. If she is to give good, even food for the baby, she must not eat everything she likes, viz., pretty much everything she can get down her throat. Human mothers who are nursing are always cautioned against certain foods and urged to eat abundantly certain others. Why not the cow? Find out the best ration then and supply it regularly and of the best quality. Don't let her run in fields and eat all sorts of weeds and bushes. It will surely affect the milk. Of the care in the stable and cleanliness in milking, much has been written, and we need say nothing, save to emphasize, of course, their very great importance.

But a suitable cow, suitably fed and cared for will not give good milk for babies all the year, nor at all times of the year. All farmers reject the milk which comes a few hours or days after the delivery of the calf. But there are other times when it is not fit to use, and may cause infantile colic, diarrhœa, etc. Cruel treatment and abuse, the appearance of catamenia, the connection with the bull, or undue sexual excitement from any cause will affect the milk. If the farmers will not recognize this, the only safety is in spaying the cows. Loss of the ovaries means to be sure, loss of calves and a shorter life as a milch cow.

Now all of these suggestions mean that the milk will cost much more than it does now. Can we afford it? Is it of enough importance to require that the state, by regulation, put this burden

on the poor? We are not ready to say so yet. While it is very desirable, we do not know that it is necessary. We trust that our readers will be making observations along these lines and will give them to the profession, which as usual must take the lead in all health reforms. Our columns will be always open for the presentation of any facts or the exploitation of any reasonable theories touching these matters.

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THE adversaries of symphyseotomy have pretended, and still do pretend that it is a difficult operation, and that the complications to which it exposes the patient renders it particularly dangerous. In the first place, it was said that the symphysis often presented an ossification and was consequently difficult to separate. This so-called ossification condemned the operation in Germany as early as 1778, the year when Siebald performed his first operation and found this state of affairs present.

It may well be questioned whether the celebrated surgeon of Würzburg really made his section in the cartilage uniting the bones, and this seems to probably be the case because there are three other recorded instances in which surgeons thought that the symphysis was ossified, and after they had used both chisel and hammer, discovered that their incision had been made too much to one side. They afterwards found the normal fibro-cartilage, which was divided without difficulty with the knife.

Queirel, of Marseilles, has examined two hundred female pelvises, post mortem, the subjects being of various ages, and both nulliparous and multiparous, in order to elucidate the question of ossification of the symphysis, with the result that in not a single instance could he find this condition, and in all a section of the joint could be made easily with the knife. As no case of ossification demonstrated by a necropsy has been recorded, we can in the practical point of view leave aside this abnormal condition, which, if it ever does exist, has never been demonstrated with certainty.

Severe hemorrhage has also been put forward as a complication sufficient to condemn symphyseotomy, but out of a large number of reported cases of the operation, we have been able to find only two in which loss of blood was really the cause of death; and in one of these a uterine hemorrhage complicated that from the cor-



pus cavernosum of the clitoris. In point of fact, the loss of blood in symphyseotomy is very small in most cases, but if it should be considerable, it can easily be controlled by carefully packing the wound.

Deep tears of the vagina, urethra or bladder have been given as serious complications of this operation, and quite a number of instances have been put on record, occurring especially in primiparæ. Urethro- and vesico-vaginal fistulæ have resulted in six cases, but these lesions do not result exclusively from symphyseotomy, and are more likely produced by the application of the forceps.

Varnier believes that it is the projection formed by the separated ends of the symphysis which is the cause of the vaginocutaneous lacerations because the soft tissues are pressed against it during the exit of the head. According to this authority, it is easy to prevent such lesions by bringing the pelvis together as soon as the head is well engaged, and thus the soft parts will have their normal bony support. Pinard advised the introduction of a Champetier de Ribes bag filled with water into the vagina at the commencement of labor, when the patient is a primipara. Kufferath of Brussels, in one case of symphyseotomy disengaged the head transversally, the occiput not being brought forward, and he believes that this is a useful precaution to avoid laceration of the retro-pubic tissues. The pubis being separated, the normal point of flexion formed by the pubic arch is wanting, and if the occiput is brought forward in order to deflect the head, an exaggerated distension of the already stretched tissues is produced, and laceration is inevitable. A transversal disengagement of the head is also indicated on account of the change in shape of the lower strait and of the soft pelvis after separation of the pubis; they are no longer oval in the antero-posterior direction, but are transversally oval.

To put the head in a direct position into these two openings, whose long axis is transversal, is to almost fatally rupture the unsupported anterior lip, says Varnier. Zweifel binds the pelvis with an Esmarch's band as soon as symphyseotomy has been done, in order to avoid any lesion to the soft parts. Freund uses a lever with which he holds up the anterior commissure of the vagina during extraction of the head, while Audebert of Bordeaux has invented a very ingenious instrument which, when fixed to the symphysis, regulates the diastasis of the pubis and prevents any sudden separation of the bones.

It appears to us that the precautions indicated by Pinard and Varnier should suffice to prevent any lesion of the soft parts, and the results obtained at the Baudelocque clinic in Paris, abundantly prove this. Of forty-four symphyseotomies done in 1894 and 1895, twenty-five patients were primiparæ, and only in three of them were there any lesions of the soft tissues; in one, this occurred because the pelvis was not closed after the head had engaged. The three cases, for that matter, were discharged cured.

The persistent mobility of the symphysis has also been described on several occasions as a bad point in the operation of symphyseotomy. It does often exist without producing the slightest pain or any trouble in walking; in some cases it disappears a few weeks after the patient is about. But in the great majority of cases consolidation is perfect soon after the operation, and the gait is absolutely normal.

The only real infirmities due to mobility of the symphysis and the sacro-iliac synchondroses occurred in patients operated on before the era of aseptic surgery, and in which a suppurative process arose in the joints, an inexcusable occurrence at the present time. In a case of this kind, where pain in walking continued seven months after symphyseotomy on account of suppuration in the field of operation, Binaud of Bordeaux successfully sutured the pubis with silver wire after curetting the infected focus; the patient soon walked without pain and all symptoms disappeared.

Infection is, however, the great danger in symphyseotomy, just as it is in any surgical procedure, but why should sections of the symphysis expose the patient more to septicemia than any other obstetrical operation? Such, of course, is not the case, and it is far easier to obtain asepsis in doing Sigault's operation than it is to disinfect the vagina, and we do not believe that there is any danger from this source whatever, if proper and thorough aseptic technique is observed.

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At the recent meeting of the Obstetrical Society of France, Dr. Sebillotte discussed the treatment of hemorrhage from placenta previa at some length and with much common sense. The proper treatment of this serious obstetrical complication is quite different according to the period of gestation at which it takes place, as well as the variety of the insertion of the placenta and the condition presented by both the mother and child.

When a hemorrhage, due to a placenta previa, occurs before the sixth month of gestation, it is difficult, if not impossible, to make a diagnosis of its real cause, and the treatment in no way differs from that of a threatened miscarriage, namely, absolute rest in bed, hemostasis and asepsis by vaginal irrigation at a temperature of 48° C., opiates and cold acidulated potions. If miscarriage is prevented, the pregnancy should be watched and all cause of relapse must be avoided.

Is it proper to temporize, by checking the hemorrhage occurring during the latter months of pregnancy? If it takes place in the seventh month, the fetus will have little chance of surviving, and consequently everything must be done to continue pregnancy but bearing in mind that the mother's life is of the first importance. After the seventh month, one of two conditions may be present: the loss of blood is slight, occurring only once, and is easily checked by the means already mentioned, and in such a case nothing will justify the physician to interrupt the pregnancy, but he must keep the patient well under his watch. Care should be taken to see that the fetus is in proper position, and if not so, it should be kept in place by an abdominal belt or binder. Everything should be in readiness in case an urgent interference should be indicated, and for this, vaginal antisepsis must be assured, and the patient's general condition kept up by stimulation and tonic treatment, and *each drop of blood lost is to be replaced by a drop of artificial serum.*

When hemorrhage is serious, both on account of its frequency and amount, to temporize is folly. All obstetricians consider the patient's life in danger under these circumstances, as long as she is not delivered of her child. Action is demanded in a triple way, viz.: to arrest the flow of blood, to empty the uterus, and lastly, to combat the anemia and thus improve the general condition. There are a certain number of methods now in vogue, namely, accouchement forcé, rapid delivery, rupture of the membranes, bi-polar version, complete detachment of the placenta, and lastly, vaginal tamponade. No matter which of these methods is used, extraction of the fetus should not be delayed as soon as dilatation is complete, either by version or with the forceps, and if the fetus is dead, basiotripsy is indicated.

After delivery, the placenta must be removed with care, and if hemorrhage continues, injections of ergotin, hot intra-uterine

irrigations, and if necessary, a tamponade, are to be resorted to, without forgetting a general treatment, because at this time all danger has not disappeared.

All the above-mentioned methods have their advantages and their disadvantages, but it is difficult to state just what their respective value may be. But what is most important is the general treatment of the patient.

For slight hemorrhage, rest in bed, hot vaginal irrigations, cold acidulated drinks, and a tonic treatment, are quite enough. For more abundant loss of blood, the horizontal position is not enough, and the blood should be driven to the head and thorax by bandaging the limbs with linen bandages; or even Esmarch's band, while the head should be lowered, and the pelvis and lower limbs are elevated. Syncope is treated with heat and alcoholic frictions.

Hypodermic injections of ether and caffen are excellent stimulators. But most important of all are injections of artificial serum, preferably given subcutaneously. The quantity to be injected each time will vary according to the patient's condition, but usually 200 cc. is enough. According to Pozzi, one injection should not exceed 1,000 cc., and not more than 3,000 cc. should be injected in twenty-four hours. Sebillotte recommends a serum composed simply of seven grammes of chloride of sodium to 1,000 cc. water.

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CHOREA of pregnant women, which is nearly identical in its clinical form to ordinary chorea, is by far more frequent in women having had this nervous affection in childhood, according to Delage, and this fact is consequently an important predisposition for the disease.

As to the influence of one or several pregnancies, we may conclude from reported cases that, if chorea is more frequently met with in the primipara, multiparæ are not exempt, although they may not have been afflicted with it during former pregnancies.

It makes its appearance more frequently during the third month of gestation, less often during the fourth, fifth and sixth months. When once the disease has occurred, it only disappears, in the majority of cases, after delivery has taken place. During the puerperium the incoördinated movements diminish in intensity and a cure, which may take place during the third or

fourth day post partum, is established, usually in from two to four weeks after labor.

Occasionally, however, a chorea may diminish during gestation; the movements persist up to the time of labor to a slight degree; but in some instances, they increase in intensity during labor, and at last disappear completely during the post partum. Such a course of events is more usually observed when a treatment has been ordered. Occasionally a complete cure may take place during pregnancy.

The most important point to consider is the prognosis of this complication of pregnancy as regards both mother and child. If statistics are only to be taken into consideration, the prognosis would appear most serious, because the mortality of 186 cases collected by Delage was 25 per cent. But it must be recalled that the most serious cases are the ones usually reported in medical literature, while slight cases pass by without being recorded.

On the other hand, a number of these patients die from other conditions than chorea, so that it is in reality quite a difficult thing to form an idea as to its real gravity. All that can be said, as Tarnier has pointed out, is that the prognosis should be reserved, and the family should be warned as to the possibility of serious events occurring.

The same difficulty exists in considering the prognosis of the child. Many fatal cases have been put on record, and it is consequently certain that the prognosis is quite serious, but not so much so as might be thought.

Treatment with chloral and bromide of potassium has given good results, but they should be exhibited in large doses, as much as from six to eight grammes of chloral and quite as much, if not more, of the bromide, according to Pinard. In serious cases, artificial abortion may become necessary.

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WE present to our readers this month the first of a series of articles on Intubation, written by Dr. Bokay of Budapest. So far as we know, this is their first appearance in English. They will present incidentally a very interesting history of the progress in the treatment of obstructive laryngitis during the past ten years. It will be noticed that the translator is already well known as an authority on Intubation as evinced by his article in our issue of February, 1897.

## CORRESPONDENCE.

October 10, 1898.

To the Editor of the Annals of Gynecology and Pediatrics:

Dear Sir,—In a synopsis of an article by Dr. J. Riddle Goffe, in the August number of your Journal (page 829, line 14), entitled, "Anterior Colpotomy and Shortening of the Round Ligaments Through the Vagina, etc.," Dr. Goffe is made to say that "Wertheim of Germany had devised it (the operation for shortening the round ligament through the vagina), but that he himself was the first to perform it." This is somewhat indefinite and misleading, and undoubtedly misrepresents Dr. Goffe's meaning, as well as the actual facts. The following facts will, I hope, throw light upon the origin of the operation:

Dr. E. Bode of Dresden, at a meeting of the Dresden Gynecological Society, December 9, 1895, said he "believed that one could perform this shortening (of the round ligaments) by way of the vagina." (Reported in *Centralblatt für Gynäkologie* February 8, 1896, page 168, line 18).

Wertheim, in the *Centralblatt für Gynäkologie* of January 4, 1896, suggested fixing the *round ligaments* in the vaginal walls, "instead of the *body of the uterus*" ("statt des corpus uteri"), as is done in ordinary vaginal fixation.

In the *Centralblatt für Gynäkologie* of March 7, 1896, Wertheim reports four cases, in two of which he sewed the round ligaments directly to the vaginal walls. In the other two cases he sewed them to the peritoneal edges. He then mentions a case of *shortening* the ligaments, by folding them upon themselves and suturing them.

In the same journal for March 28, 1896, Bode reports three cases of shortening of the round ligament per vaginam, by folding and suturing them, and gives the following dates: November 29, 1895; January 21, and February 24, 1896. According to this statement, he performed the first operation of this kind.

In this country, Vineberg first performed the operation, viz., February 4, 1896, and reported it to the New York Academy of

Medicine February 27, 1896 (Am. Gynecological Journal, page 772, line 6).

The next operation in this country was by the writer, February 11, 1896, and reported with six others to the Chicago Gynecological Society April 27, 1896 (Am. Gynecology Journal, vol. VIII, page 777, line 9).

The next operator was Dr. Goffe, whose "first operation was done in March, 1896," and reported with thirty others to the American Medical Association in June, 1898 (Journal of the Am. Medical Association, vol. XXXI, No. 10, page 510, 2nd column, line 1).

Thus five different operators devised the same operation at about the same time, without one knowing of the operation of another, viz., on November 29, 1895 (Bode); some time between January 4 and March 7, 1896 (Wertheim); February 4, 1896, (Vineberg); February 11, 1896 (Byford), and in March, 1896, (Goffe).

So much ado about nothing.

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# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### SCARLET FEVER.

HENRY NELSON POTTER, M.D.

AMONG the diseases that are generally regarded as affections of early life, there is not one that should be dreaded more by the medical man (diphtheria excepted), than scarlet fever. To be sure, there is a high death rate in some of the other diseases of early life, but either such diseases are less common or are controlled to a greater extent by medical treatment.

In the past there has been too little attention paid to scarlet fever—its cause and treatment—and today there is little being done by the profession to stay the ravages of this disease, which, in either a mild or severe form, is always dangerous.

Notwithstanding the fact that this disease stands at the head of all diseases with its complications, that it shows peculiar characteristics in different epidemics, that from the mildest may be contracted the most severe case, too little attention is generally paid to the disease by the medical attendant in his treatment and quarantine, especially when the case is in a simple form.

Scarlet fever and scarlatina are one and the same disease, the latter name being generally given to those cases mild in nature. Many times the attending physician, to allay the fears of the relatives of the patient, pronounces the disease scarlatina, and by so doing conveys the idea that the disease is not dangerous, and different from scarlet fever. This is a grave error, because the quarantine in such cases is hardly ever enforced, the patient is not isolated, and other cases are apt to occur, with the possibility of an epidemic.



Scarlet fever is always a dangerous disease, even in a mild form, and many times a lax treatment in such cases has resulted in serious complications and death.

Let us, then, as medical men, remember the danger in this common disease, no matter in what form it may occur, and never relax our treatment until the danger is past.

The history of this disease is not exactly clear. In ancient times, the character of the exanthem was not deemed of sufficient importance to demand an exact description of it. Hence, we have no evidence of the prevalence of scarlet fever at that period. There is no history of the disease before the sixteenth century, and even in the beginning of the seventeenth century, it was referred to as only another form of measles. At the close of the seventeenth century, one of the most learned physicians in Europe classed scarlet fever and measles as one and the same disease. Sydenham established the specific nature of scarlet fever by observations made during the epidemics which occurred in London from 1661 to 1675, and thus laid the foundation of our positive knowledge of this disease. It was soon recognized that the character of the epidemic was liable to great variation; a series of years during which the disease had been mild, were followed by others which manifested an unprecedented malignancy, and established the dangerous nature of the disease. Epidemics of scarlet fever have retained this peculiarity up to the present time, especially in some parts of Europe. The disease first appeared in Iceland, in 1827; Greenland, 1847, after extending over Europe, Asia and Africa. The disease appeared in North America in 1735; South America, 1829; Australia, 1849.

*Etiology.*—Scarlet fever, or scarlatina, is a contagio-infectious disease, characterized by fever, sore throat, a bright red eruption on the skin, and a tendency to certain complications, the most important one being acute inflammation of the kidneys.

There is very little doubt that scarlet fever spreads mostly by contagion, and from the great vitality of the contagium, it is probable that every case has arisen from a preceding one of the same kind. That it is due to a specific germ, is probable, although it has not been discovered as yet. A large majority of those attacked are children, and it is comparatively infrequent in adults. Sex, occupation and social position, have no influence in its production. Older people are exempt, from the fact that for

the most part, one attack protects against future attacks, and that most adults have already had the disease. Still, old people occasionally have it, and protection is not always perfect, so that some people have a second attack. Some authorities are, however, doubtful of a second attack. Very young children are less susceptible than older ones. It is remarkable for the tenacity with which it adheres to clothing, bed clothes, books, etc., that have been used by the sick. The contagium has been conveyed by such means to a great distance, or has lain dormant for months, and then meeting with a suitable nidus, has again developed the disease. Rooms occupied by those suffering from this disease have been known to retain the contagium after everything movable had been taken from the room, and months afterward, cases have occurred in persons occupying the rooms; so that such rooms should be carefully disinfected, the paper scraped from the walls, and the ceiling whitewashed, before being occupied.

*Symptoms and Course.*—The incubation period of scarlet fever is comparatively short, rarely more than seven or eight days—sometimes probably only twenty-four to thirty-six hours. The invasion is generally sudden. The patient has a rigor, or vomits and complains of frontal headache, with languor, loss of appetite, and pains in the back and limbs. The temperature rapidly rises to  $103^{\circ}$  or  $104^{\circ}$ , and the pulse and respiration are quickened. Very soon the patient complains of sore throat, and swallowing is painful. On the second day, or generally between twelve and thirty-six hours from the first symptoms, the rash appears. It first makes its appearance on the upper part of the chest, in front and on the sides of the neck, and soon spreads to the abdomen and back, and then to the upper and lower limbs. It consists of minute red spots, bright in the centre, fading toward the edge, set closely together, so that the paler edges almost coalesce. Sometimes the coalescence is complete, and the skin has a uniform bright red color, or the eruption may be more discrete, and areas of pale skin are visible between the spots. The face, forehead and cheeks are mostly deeply and uniformly flushed, without showing the punctiform arrangement of the rash, which is seen elsewhere. The skin becomes slightly swollen with an abundant rash. The eruption may be pale pink or deep livid purple, and in severe cases, papules may be raised above the surface, vesicate, or form minute points of pus. The rash may be limited to the

chest, or in patches on the thighs, elbows or ankles. This occurs frequently in second attacks, and in the mild cases, known as "surgical scarlatina." The rash reaches its height on the third or fourth day; begins to fade on the fourth, fifth or sixth day, and altogether it may last from five to ten days. After the subsidence of the rash, desquamation takes place, that is, the superficial layers of the cutis are shed. This is often first seen in the form of white, branny flakes on the sides of the neck, and may occur as early as the sixth or seventh day, while the eruption is still visible on the legs. The amount of epithelium shed, and the size of the particles, are various. Sometimes there is only a little roughness about the tips of the fingers or toes, or in the folds of the palms of the hands; or the epidermis may peel off in large flakes, and in rare cases, complete glove-like moulds of the hands and fingers are thrown off. Desquamation generally takes from four to six weeks, but in some cases a longer time is required. In the throat, the soft palate, fauces and uvula are deep red, and sometimes œdematous; the tonsils are reddened, swollen, and present a number of yellow points, from the follicles being distended or covered irregularly with ashy or yellowish secretion. In later stages they may suppurate or sloughs may form in them. The nasal mucous membrane is inflamed with secretions, and the cervical glands become enlarged and tender. The tongue is at first covered with a white fur, but in a few days this clears off from tip to base, leaving a bright red, raw surface, on which the fungiform papillæ are usually prominent; so as to give the appearance known as the "strawberry tongue." The temperature is frequently high, reaching  $104^{\circ}$  or  $105^{\circ}$  on the first day, and remaining at this level for some days. A temperature of  $106^{\circ}$  may be reached. The skin is pungently hot and generally dry, but profuse sweating may occur, without affecting the temperature or rash to any great extent. The pulse rises to 120, or may reach 150 or 160. The mental faculties are dulled in severe cases; delirium is frequent, especially toward night; and drowsiness and coma supervene. About the fourth, fifth or sixth day the disease may reach its height, and then with the fading of the rash, the temperature begins to fall, generally subsiding gradually, but sometimes more suddenly until the normal is reached, and convalescence is established. Death may occur in fatal cases about the fifth day, or later, from exhaustion, or in a

typhoid condition, with low delirium, semi-coma, and dry brown tongue; or it may occur later as a result of complications.

*Complications and Sequelæ.*—These are numerous and important, but it may well be asked what constitutes a true case of scarlet fever, and what conditions should be classed as complications and sequelæ. We speak of this disease as one characterized by fever, sore throat and a peculiar eruption, but do these symptoms alone constitute a true case of this disease? What is meant, also, by a mild epidemic and severe one? The first, with a death rate hardly perceptible, the second, with one of thirty or forty per cent. Are they both true scarlet fever, or is the latter death rate due to complications or sequelæ, and not the disease proper? Is nephritis a part of the disease, or a complication? Under this heading I will refer to the different conditions as complications and sequelæ as classified by medical authority in general. Not only the tonsils, but the soft palate and the uvula may slough. More frequently, the glands under the jaw and in the neck are much swollen, the subcutaneous tissue about them is infiltrated and becomes branny and indurated. The skin then becomes dusky red, and sloughing takes place beneath it. Extension of the inflammation from the throat through the Eustachian tube may cause otitis, or inflammation of the ear, resulting in abscess of the tympanum, rupture of the membrana tympani, and otorrhœa. In the course of scarlet fever, this may seem of little importance, but it lays the foundation for serious or fatal results months and years afterwards, as suppuration of the mastoid cells, meningitis, abscess of the brain, thrombosis of the lateral sinus, or jugular vein, with pyæmia as a result, hemorrhage from the lateral sinus and facial paralysis. Deafness may occur on the affected side, or if both sides are affected, deaf-mutism. Other local lesions may occur, as sequelæ.

The most important lesion associated with scarlet fever is nephritis, and it is a question if the kidney is not affected in every case of scarlet fever. More frequently, nephritis is first recognized as a sequelæ two to four weeks after the beginning of the illness, when the patient is quite convalescent, or suffering only from desquamation. In such cases it may begin with a chill and rise of temperature, and the passage of smoky or blood-colored albuminous urine. Dropsy may not occur, but more often the first thing noticed is swelling of the feet and face, and then the

urine is found to be scanty, high-colored and albuminous. Recovery is common from slight cases, but the dropsy may become general and death may result after six, twelve or eighteen months.

Bronchitis, pneumonia, pericarditis and endocarditis may occur in the course of the illness. Pleurisy may appear as a sequela. Dilatation of the heart sometimes occurs. An acute general arthritis often follows upon scarlet fever so closely that the joints may be swollen when the rash is still present. This condition may affect many joints, but is generally mild; nevertheless, it is often accompanied by endocardial murmur, which may be followed by permanent valve disease.

*Varieties.*—Three forms of this disease are recognized, viz.: scarlatina simplex, scarlatina anginosa, and scarlatina maligna.

The first form is of moderate severity and generally ends in recovery.

The second form is characterized by severe throat symptoms.

The third form mostly includes cases that are fatal within five or six days, from the intensity of the disease, without complications other than sore throat. In this form the patient may be struck down with convulsions, and collapse and die in twelve or twenty-four hours, before the rash has had time to develop. Other cases have severe rigor and vomiting, intense or livid rash, delirium, high fever, and die in two or three days.

The term *latent scarlatina* includes those cases in which the rash and sore throat have been so slight as to escape detection, and the illness has only been discovered by the occurrence of desquamation or anasarca. Patients with open wounds appear to be particularly susceptible to the poison of scarlatina, but the disease is generally mild in form, and the rash of short duration.

*Morbid Anatomy.*—Very little is learned in this disease by the examination of the organs after death. In malignant cases, there are changes common to pyrexial and septic disorders; soft liver and spleen, fluidity of the blood, petechial spots on the serous membranes, and hypostatic congestion, or œdema of the base of the lungs. The tonsils present the same conditions of ulceration and suppuration as seen during life. As the cause of scarlet fever has not been discovered as yet, very little is learned by examinations of the body after death.

*Diagnosis.*—Scarlet fever is generally recognized by the occurrence of fever and sore throat, followed in twenty-four or thirty-

six hours by the characteristic rash. The rash may be confounded with that of measles, r  theln, typhus or the roseola of small pox and other fevers. It is generally brighter in color and more uniform in distribution than those of the first three diseases, but is sometimes very difficult to distinguish from r  theln. In small pox, the distribution of the eruption is more distinctive, as about the axilla, groins and thighs, and is more purple in color. Sometimes the disease is only recognized when desquamation occurs and the appearance of albumin in the urine. During an epidemic, a diagnosis is not difficult to make. Scarlet fever should always be suspected when there is a high temperature, marked throat symptoms, and an eruption appearing within thirty-six hours.

*Prognosis.*—A prognosis in this disease is always uncertain. Serious renal complications may occur in the mildest cases. The mortality is variable, some epidemics being mild, with an exceedingly low death rate, while other epidemics may show a mortality of thirty or forty per cent. In individual cases, the prognosis may have to be determined by the condition of the patient from day to day, complications increasing the danger. Severe angina, intense or livid rash coming out late, are always unfavorable. Cases with sloughing of the cervical glands are generally fatal. When scarlet fever attacks women recently confined, a large percentage of the cases are fatal.

*Treatment.*—The treatment of this disease must be symptomatic. In mild cases it should be the same as that of other fevers. The patient should be placed in a well-ventilated room, with a light diet and careful nursing. The body should be sponged with tepid water, simple salines given internally, and the sore throat relieved by sucking ice. If the tonsils are much swollen, and covered with secretions, the latter should be removed, and disinfectant or astringent solutions applied. Perchloride of iron, chlorinated soda and dilute hydrochloric acid may be used, and similar remedies may be also used to syringe the nose, when that is involved. Hot fomentations or linseed poultices may be used when there is much swelling, or pain in the neck and about the angles of the jaw. Abscesses should be opened early. If otorrhoea is present, the meatus may be syringed with warm water, a solution of boric acid (1 in 20), or dilute peroxide of hydrogen. The salicylates may be used when rheumatism is present. In severe

typhoid forms, with quick, feeble pulse, stimulants, as ammonia and brandy are called for. Where there is high fever, with delirium and restlessness, cold affusions to the head and body often give relief. When necessary, the patient should be quieted by a solution of the five bromides. Antipyretics should be used with care.

During convalescence, the patient should have the greatest of care. As the chief danger lies in the renal complications, care should be taken that the patient is not exposed to the cold or draughts, as long as desquamation is going on. At this time the bowels should be kept active to prevent the occurrence of albuminuria.

As the poison of scarlet fever is conveyed by the particles of detached skin, patients should not be allowed to mix with the healthy until desquamation is complete, which is about six weeks. During desquamation the body should be washed with warm soap and water, and during the day smeared with carbolic oil (1 to 40), or with glycerine, to prevent the particles being carried off into the atmosphere. Quinine and other tonics may be useful where the patient recovers slowly.

In cases of nephritis, the safer diuretics should be given, as, acetate of potash or bitartrate of potash, but if œdema and uremia are present, cathartics should take the place of diuretics, with hot packs or vapor baths. Pilocarpine may be used with benefit as a diaphoretic.

Convulsions should be met with a solution of the five bromides, and in cardiac changes, the infusion of digitalis should be given for its action on that organ, and its diuretic effect.

The patient should be carefully watched, and the appearance of any complications rigidly treated.

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## MY SUCCESSES WITH O'DWYER'S INTUBATION.

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Translated from the German with the special sanction of the author.

EDWARD M. PLUMMER, M.D.

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GENTLEMEN: During the present year I have reported, in the Hungarian medical periodicals, as well as in the "Jahrbuch für Kinderheilkunde," the statistics of diphtheria and croup for two years, in connection with the history of 479 collective cases, clinically treated in the isolated ward of the Stefanie-Kinderhospital, of which I am director.

In this report I also gave a detailed account of those 182 tracheotomies which were performed, for the most part by myself, during this period. You will remember that I divided my cases of laryngitis crouposa into two groups, in order to be better able to judge of the results obtained by tracheotomy. I separated independent or true croup of the larynx from the laryngitis crouposa, which developed in the course of diphtheria, because I fully share in Professor Henoch's opinion that these two forms of croup show a marked difference in the results obtained from tracheotomy. Of my 182 operative cases, those observations, in which croup of the larynx appeared as an independent disease process, formed the smaller part; those in which laryngitis crouposa developed in connection with or after faucial diphtheria, the larger part. While I obtained 39 per cent of cures in two years from tracheotomy in independent croup, I could show only 14½ per cent of cures from this operation in croup developing with diphtheria, in the same length of time.

In the year 1888, Professor Henoch observed in the children's ward of the Berlin "Charite," only 13 per cent of cures from the operation when performed in the laryngitis crouposa of diphtheria, while in independent laryngitis crouposa, during the same



time, the recoveries resulting from this operation amounted to 60 per cent.

My above mentioned statistics cover the period from August 1, 1888, to August 1, 1890; in not a single case was an intubation attempted.

I performed my first intubation in August, 1890 (this was the first attempt at intubation in Hungary), and since then I have systematically followed O'Dwyer's procedure in the hospital. For this reason I consider myself in a suitable position to render an account of the fate of my 109 intubated patients to this meeting of distinguished specialists.

These 109 cases came under my observation in the hospital from August, 1890, to August, 1891; during this period, 310 cases of diphtheria and croup were treated in the isolated ward under my direction.

As O'Dwyer's procedure, up to the present time, has been followed, only in the Stefanie-Kinderhospital, at Budapest, these 109 cases are the only ones in Hungary that have been treated by intubation.

From August, 1890, until January, 1891, I was not able to intubate every patient suffering from croup, as I had only one set of instruments at my disposal. During these five months, intubation and tracheotomy were parallel operations. If a tube was available, we performed intubation; if not, tracheotomy was done. For that reason no special selection of cases for intubation was made. In December, 1890, I purchased a second set of instruments, and, as I now had twelve tubes to work with, I was able to intubate every case of croup, after the first of January. The first set was from the firm of Windler in Berlin, the second from Jetter & Scheerer in Tuttlingen. Recently, I procured for the first time, from New York, America, an original O'Dwyer set (Tiemann), but have used them, so far, in only a few cases. That the tubes of the three sets do not exactly correspond, either in form or in weight, there is not the slightest doubt. Whether these certainly very slight differences possess any importance, when considered from a practical standpoint, I may discuss at another time.

The 310 cases of diphtheria and croup treated during the past year may be classified as follows: faucial diphtheria without laryngeal symptoms, 128 cases; faucial diphtheria with stenosis

and croup symptoms, 139 cases; independent laryngeal croup, 43 cases. I must remark that, among the patients of the last two groups, the so-called "secondary croup" appeared so rarely that I consider it unnecessary to make a special entry of these cases.

Among the 310 cases of diphtheria and croup, 158 deaths are recorded. The general percentage of cures amounts, therefore, to 49 per cent. (From August 1, 1888, to August 1, 1890, the percentage of cures in diphtheria and croup amounted to 48 per cent.)

Of the 128 cases of diphtheria without laryngeal symptoms, 82,—that is, 64 per cent, were cured. While in the preceding two years, in the same group of 170 cases, 131 (77.5 per cent) were discharged cured. This number ought, certainly, to prove sufficiently that the character of our diphtheria epidemic in the last year is in no respect better, but even worse, than before, although we will not pass over in silence the fact that the croupous complication appeared this time in more trifling numbers than in my earlier statistics. From 1888 to August 1, 1890, laryngeal symptoms were observed in 61 per cent of our collected diphtheria cases, while in our present diphtheria material, laryngeal complications were represented in only 52 per cent.

Intubation was performed in 78 of my 139 diphtheritic croup cases of the past year, and tracheotomy without intubation in 39 cases; in 16 cases,—less severe, no doubt,—recovery took place without operative interference; while in 6 cases, which terminated fatally, an operation was not attempted, as contra-indications were present. Once more, I emphasize the fact that, from August 1, 1890, to January, 1891, tracheotomy was performed alternately with intubation; while from January 1, 1891, in every single case of diphtheritic croup, intubation was employed exclusively.

Independent laryngitis crouposa was observed on the whole, in our 310 cases, only 43 times. Of these, intubation was performed in 31 cases; in 6 cases tracheal section was employed, while in 6 cases no operative procedure took place, as the patients were cured without resorting to one. I here emphasize once more the fact that tracheotomy was performed only in the period before January 1, 1891, and that in this time intubation and tracheotomy were done alternately.

I have taken the liberty to trouble you, most honored gentle-

men, with all these data in order to fully illustrate to you my method of collecting material. From what has been previously stated, you will clearly see that it was my desire only to experiment, and as, with the exception of six cases, in which, according to my judgment, the operation was contra-indicated, every stenotic patient, if the severity of the symptoms so required, was intubated during the last year (the fact that up to 1891 I was obliged to perform 45 tracheotomies in addition to the intubations, ought not to influence the result to a great extent), the data which I have brought to your notice will, I believe, sufficiently answer the question: What results were obtained during the past year in the Stefanie-Kinderhospital at Budapest, by means of the O'Dwyer method?

I do not intend to enter into the technique of the O'Dwyer procedure in this connection, because you are sufficiently familiar with it. I will only touch upon certain points of this method before proceeding to a detailed account of the results obtained by it.

We will first consider the introduction of the tube.

The insertion of the tube in the larynx must always be skillfully performed, for the reason that, if it be not accomplished quickly and gently enough, asphyxia may easily supervene. American intubators, as O'Dwyer and Dillon Brown, claim that the operation ought not to take up more than five to ten seconds. For my part, I do not consider this period too short.

Of course it not infrequently happens that the introduction of the tube into the larynx is not successful at the first attempt,—that is, the tube does not penetrate the glottis, but enters the œsophagus. For this reason, a silk cord is attached to the tube. The ends of the cord are then held in the intubating hand, next to the handle of the instrument. If the tube falls into the œsophagus, it is immediately withdrawn by means of the cord. Whoever performs intubation frequently will in a short time attain such dexterity that in most cases the first attempt to introduce the tube will prove successful. We, that is, my assistants in the hospital and myself, usually succeed in introducing the tube into the trachea at the first essay. Cases are encountered, however, in which successful intubation is not accomplished until the second or even the third attempt; indeed, recently, in the case of a little patient fourteen months old, the introduction of the tube into the trachea did not take place until the seventh trial. After fifty-

eight hours' retention of the tube, the child who was affected with independent laryngitis crouposa was cured, ejection of the croup membranes having taken place. If the intubation fail, a new effort should be made after a short pause; longer rests must be observed, only in case the essays have greatly weakened the patient (tedious and unskilful intubation).

The effect of successful intubation is, as is well known, a striking one. The child who, before the employment of the tube, presented a picture of the most distressing dyspnoea (forcible drawing inward of the scrobicular and jugular regions, loud whistling breathing, cyanotic lips, painfully anxious expression of the features) after the introduction of the tube, immediately breathes freely. The scrobicular and jugular symptoms disappear. The cyanotic lips regain their normal color, and the patient's features grow bright. Older, intelligent children volunteer the information, in a whisper, that they are relieved of the suffocation and dyspnoea. It is obvious that the change of symptoms just described, can take place only if the croupous process has not yet extended to the lower part of the trachea and the large bronchial divisions; in such cases, intubation, as may easily be understood, can offer no relief. That the introduction of the tube into the trachea has been successful, we understand as a rule from the fact that a peculiar sound is heard, as the air rushes through the tube, thus inducing a fit of coughing during which the patient generally expectorates profusely a purulent, tenacious mucus, the quantity of which is often equal to a dessertspoonful and, not infrequently, pieces of croup membrane are brought to light; only small pieces, generally, to be sure, but sometimes imposing, compact membranes, several centimetres in length, so that one can scarcely understand how they could have been forced through a tube of such relatively small calibre.

O'Dwyer and his followers, in their first publication, advised making the first attempt at intubation on the cadaver, for the purpose of acquiring skill. I did this twice, but was not successful in introducing the tube either time, principally on account of the rigidity of the cadaver. I made my first success on the living body, and have accustomed myself to it, as my assistants who are sufficiently skilful in the operation have done. Before I did intubation, I had seen no one else perform it, and proceeded only from information derived from American communications. My

first patient had already been tracheotomized for croup. The croup process had progressed favorably, final removal of the canula, however, could not be accomplished on account of the formation of granulation tissue. In this case, one intubation and the wearing of the tube twenty-four hours sufficed for the permanent removal of the canula.\* Soon afterward the child was discharged from the hospital, entirely cured, with closed tracheal wound and free breathing. This, my first and brilliantly successful intubation, spurred me on to a systematic use of the O'Dwyer method, in which, before my first attempt, I had no especial confidence.

It is a question, whether, in introducing the tube, a pseudo-membrane may not be pushed out of the larynx, that is, from the upper into the lower parts of the trachea, and by occluding it, cause suffocation which may easily terminate fatally. I must confess that I feared this in performing my first intubation, and closely followed O'Dwyer's instructions to be always prepared to do tracheotomy also. I was, however, soon convinced that the patient's life is rarely threatened by this danger. In my own experience, at least, among 109 intubation cases in the hospital, it has happened only twice that a membrane has been pushed into the lower parts of the trachea, and then in one of these cases death did not ensue. In the first case I had to intubate a child  $6\frac{1}{2}$  years old, who, in addition to severe faucial diphtheria, had been suffering for three days from a most distressing stenosis. On introducing the tube, I noticed immediately that, although the intubation was successful, the breathing was not only not relieved, but the cyanosis was increasing, and the patient was almost suffocated. I saw that the retention of the tube was contraindicated, and at once withdrew it by means of the cord, on which the patient coughed out a compact membrane several centimetres in length, an exact cast of the trachea, and the breathing became considerably freer. I then intubated the patient once more, and this time the breathing became perfectly free, unfortunately, however, for only twenty-four hours; as bronchitis crouposa developed, dyspnoea soon came on again, and in spite of intubation the patient died in forty-eight hours from suffocation.

\*The attempt at intubation took place in this case on the ground of V. Ranke's Heidelberg report 1889. "Ueber Intubation des Kehlkopfes bei erschwertem Decanulement nach Tracheotomie."

In the second case I had to intubate an eleven-year-old girl, in whom, besides severe faucial and nasal diphtheria, the gravest symptoms of laryngeal stenosis developed. The introduction of the tube caused complete cessation of the breathing; the immediate removal of the tube was followed by a copious ejection of pseudo-membranes. The second intubation, performed soon after, completely relieved the dyspnœa, and the patient recovered from her almost helpless condition in a comparatively short time. The danger of pushing down the membranes is, therefore, very rarely present, and for that reason, my recent intubations have been done with the aid of only one hospital assistant, whereas, at first, I undertook the operation with complete tracheotomy assistance, and the necessary instruments were kept ready in every case. Today, my assistants frequently perform intubation with the help of only one ward attendant.\*

O'Dwyer and the American physicians, as well as Ranke in Munich, recommend cutting and removing the silk cord which holds the tube, allowing the tube to remain in the trachea in this manner. The removal of the cord, however, in my opinion, has objections, of which the most important is that extubation,—that is, the skilful withdrawal of the tube from the trachea, can be done only by the aid of an instrument, the extubator. And yet the necessity for withdrawing the tube quickly, may very often arise. Thus it often happens that in the intubated patient severe dyspnœa takes place, because tough mucus or membranes are forced into the lumen of the tube and obstruct it. In such cases extubation must not be delayed. If the cord is not removed, but fastened to the neck, extubation can be performed instantly, so to speak, by firmly pulling the cord, when the mouth is properly opened. This operation is very simple and demands so little special practice that it can be performed even by the attendant, and this is very often done by the nurse in the hospital.

It happens, moreover, that the intubated child expels the tube in a very severe attack of coughing. If the tube be fastened by a cord, it can be easily and quickly drawn from the throat, but if the cord is cut, the tube may get into the œsophagus, and in consequence of its own weight pass into the stomach and bowels, which, to be sure, involves no danger to the organism, however unpleasant it undoubtedly would be.

\*In our hospital, tracheotomy instruments are always at hand.

If the cord is cut, operative extubation must be done. The method of extubation is not easy, as the insertion of the beaks into the calibre of the tube calls for no little practice. I am obliged to confess that I am not able to handle the extubator with sufficient dexterity, and certainly not because I have not had enough practice in the use of the instrument. In my 109 cases, I have made use of the extubator only 13 times, the child having bitten through the cord which held the tube, and any other method of extubation being impossible. I must remark that I have never experienced a disastrous result in my cases, from leaving the cord in its place. Guyer, moreover, in the year 1888, advised leaving the cord, and more recently, Ganghofner, too, to my knowledge, does the same and only exceptionally makes use of the extubator.

After successful intubation, the child is placed in its bed with a thin pillow under its head; its hands are fastened down to the sides of the bed to prevent the patient from withdrawing the tube by pulling the cord. In spite of its uncomfortable position, the intubated child soon becomes quiet and falls asleep on the cessation of the irritating cough. Tying the hands was, in most of our cases, necessary only in the first twenty-four hours; the hands were then made free, for, strange to say, the smallest child refrained from touching the cord and extubating itself unnecessarily.

And now comes the dark side of intubation.

It cannot be denied that it is more difficult to feed intubated children than those who are tracheotomized. While in some cases deglutition is difficult only in a slight degree, in others,—fortunately only rarely,—feeding the patient presents almost insurmountable obstacles. Difficult deglutition is dependent upon the position of the tube in the larynx. The limited function of the epiglottis, in particular, is the cause of the food often passing through the lumen of the tube into the trachea and causing a distressing cough, even in the most favorable case. This circumstance led Waxham of America to provide the O'Dwyer tube with an artificial epiglottis, yet the Waxham tubes are practically of no value; so that he has abandoned their use himself.

The feeding of intubated children seems most easily accomplished when the patient is placed horizontally in bed, although in some cases, if feeding presents difficulties even in this position, the child's head is laid somewhat lower on the edge of the bed and

the food is then given it. The feasibility of feeding is, however, individual; in my cases the number of patients (among the youngest, too) who could easily be fed in a sitting position, indeed, who after one or two days swallowed without difficulty, the food (milk, soup) offered them, formed the majority, while in other cases the patients were utterly unable to swallow anything, so that at times it seemed necessary to perform extubation, in order to carry on the process of feeding at all. I have often ordered such systematic extubation to be done; by this, I do not mean to say that difficulty in feeding was a very frequent occurrence, but only because it is more difficult, on the whole, to feed intubated children, and because it is of especial importance that these patients should be sufficiently fed. For which reason, in my hospital material, especially recently, I have followed this method. About twenty-four hours after intubation, I have the tube removed—even if there is no special reason for doing it—and if dyspnoea again sets in, either undertake a new intubation or have it done. The tube is removed, not only that the patient may be fed, but also because experience teaches that the longer the tube lies uninterruptedly in the trachea the more easily laryngeal ulcers (decubitus) result from the pressure. These ulcerations form principally on those parts of the mucous membrane, where the lower open end of the tube lies (that is, on the anterior wall of the trachea) and where the collar and the swell of the tube find their support in the larynx (arytenoid cartilage and the parts of the larynx nearest the cricoid cartilage).

These ulcers, however, are not often met with, and we must not forget that they are a disadvantage of tracheotomy as well.

Of my 109 intubated patients—as we shall see further on—72 died, while 37 made recoveries. An autopsy was performed on most of the 72 cases. Dissection of the larynx was left undone only when the tube had been worn a very short time. I found decubitus, on the whole, in only 18 cases, and then the formation of the ulcers was extensive in only 2 cases, while in 16 it was hardly worthy of notice. In a child seven years of age, who had been intubated twice and had worn the tube in all 86 hours, I found an extensive decubitus on the anterior wall of the trachea on a level with the lower end of the tube, which would have resulted in a softening of the cartilage. At the same time, a very extensive perichondritic abscess was noticed on the anterior por-



tion of the cricoid cartilage. In the other case, a three and one-half year old child was intubated three times. The tube was worn 89 hours and the anterior part of the cricoid cartilage was almost entirely softened; a similar condition was found on the anterior wall of the trachea. From these two cases we naturally infer that decubitus develops principally when the tube is worn a long time. That this circumstance does not always cause these ulcerations, we know from those of our cases, where from five to seven intubations were performed, the tube was worn 126 to 184 hours, and recovery was complete and made in a comparatively short time.

Professor Widerhofer mentions that he often noticed severe broncho-pneumonia in his intubated patients, at the dissecting table as well as in the living body. I, too, have often observed the formation of severe bronchitis and pneumonia in my intubated patients, but, nevertheless, I cannot share Widerhofer's opinion, that these affections were the direct result of intubation. In autopsies performed on my deceased croup patients, I have quite often seen similar processes, both in tracheotomized cases and in those not operated upon, and I am inclined to accept the preëxisting disease as the original cause of these complications.

From August 1, 1890, to August 1, 1891, I performed intubation in 109 cases. Up to January 1, 1891, intubation, as above mentioned, was done parallel with tracheotomy (the cases were not selected for intubation); from January 1, every patient affected with croup was subjected to intubation; exceptions consisted only of septic cases and those in which the croupous process had already extended to the smaller bronchial ramifications.

Of my 109 cases, 37 made recoveries, that is, 34 per cent (according to Dillon Brown, the Americans show on an average 27.4 per cent of cures). The percentage of cures which I obtained is, without doubt, extremely favorable; for, you will remember that of my tracheotomized croup patients in the last two years, only 30, that is, 16½ per cent, were cured.

Of my 109 cases, 78 patients were affected with diphtheritic croup, while independent croup developed in only 31 cases.

Of the 78 diphtheritic croup cases, 24 were cured, that is, 30 per cent (by means of tracheotomy I obtained only 14½ per cent of cures in such cases in the preceding two years). The recoveries are grouped with regard to age as follows:

In the first year.....	1 case.
In the second year.....	3 cases.
In the third year.....	11 cases.
In the fourth year.....	3 cases.
In the fifth year.....	3 cases.
In the eighth year.....	1 case.
In the ninth year.....	1 case.
In the twelfth year.....	1 case.

Of these 24 patients, 9 expelled croup membranes.

Of my idiopathic croup cases, 13 made recoveries, that is, 41 per cent (from tracheotomy in the two years preceding, I obtained 39 per cent of cures). Of the recoveries, there were three children of two years of age, four of three years, five of four years, and one of five years. Croup membranes were expelled by eight patients. Pseudo-membranes were expelled, in all, by 17 patients.

My 78 diphtheritic croup cases are classified according to age, as follows:

0-1 year.....	5 cases.....cured	1
In the second year.....	19 cases.....cured	3
In the third year.....	23 cases.....cured	11
In the fourth year.....	12 cases.....cured	3
In the fifth year.....	7 cases.....cured	3
In the sixth year.....	6 cases.....cured	1
In the seventh year....	3 cases.....cured	0
In the eighth year.....	1 case.....cured	0
In the ninth year.....	0 case.....cured	0
In the tenth year.....	0 case.....cured	0
In the eleventh year....	0 case.....cured	0
In the twelfth year....	1 case.....cured	0

Of these, 47 had not passed the third year, and only 12 were over five years old.

My 31 idiopathic croup cases are classified according to age, as follows:

0-1 year.....	2 cases.....cured	0
In the second year.....	11 cases.....cured	3
In the third year.....	8 cases.....cured	4
In the fourth year.....	8 cases.....cured	5
In the fifth year.....	1 case.....cured	1
In the sixth year.....	1 case.....cured	0

Of my 31 true croup cases, therefore, 21 had not passed the third year, and only one was over five years old.

In my 37 recoveries, the period of wearing the tube varied:

In two cases.....	10	hours.
In one case.....	17½	hours.
In one case.....	23	hours.
In one case.....	24	hours.
In one case.....	26	hours.
In one case.....	27	hours.
In one case.....	29	hours.
In one case.....	30	hours.
In three cases.....	36	hours.
In one case.....	41	hours.
In one case.....	42	hours.
In one case.....	44	hours.
In one case.....	45	hours.
In one case.....	47	hours.
In one case.....	49	hours.
In one case.....	52	hours.
In one case.....	55	hours.
In one case.....	56	hours.
In one case.....	58	hours.
In one case.....	60½	hours.
In one case.....	62½	hours.
In one case.....	68½	hours.
In one case.....	70	hours.
In one case.....	75	hours.
In one case.....	95	hours.
In two cases.....	96	hours.
In one case.....	109	hours.
In one case.....	127	hours.
In one case.....	129	hours.
In one case.....	136	hours.
In one case.....	154	hours.
In one case.....	157	hours.
In one case.....	184	hours.

The minimum of time in which the tube was worn is, therefore, 10 and 17½ hours, while the maximum amounts to 157-184 hours (7½ days).

In six cured cases, the tube was worn longer than five times twenty-four hours, and this fact is sufficient to cause to be questioned the accuracy of Escherich's statement, that, if final extubation does not take place on the fifth day, secondary tracheotomy must be done, or severe decubiti will develop, and the patient's life be endangered.

Recently it happened that in the case of a croup patient two and one-half years old, final extubation had not been accomplished at the end of twelve days; I was, therefore, on the point of performing secondary tracheotomy, when at last on the thirteenth day, final extubation could be successfully done, and the little patient was entirely cured. (This case is not taken up in the accompanying compilation, because it was observed later.)

The number of intubations in my recoveries varied as follows:

In twelve cases the patient was intubated once.

In eight cases the patient was intubated two times.

In nine cases the patient was intubated three times.

In four cases the patient was intubated four times.

In one case the patient was intubated five times.

In two cases the patient was intubated six times.

In one case the patient was intubated seven times.

I must mention, however, that I undertook only three subsequent tracheotomies, on my 109 cases, and to be sure, without results, as the patients died in spite of the operation. The explanation of the reason why I did tracheotomy on so small a number lies in the fact that I observed, as a rule, in those patients who could not be cured by intubation, symptoms of a nature that contra-indicated tracheotomy. The want of success of secondary tracheotomies was, moreover, brought into prominence in the first American publication.\*

My croup patients, apart from intubation, were treated in the manner which I have described in detail in another place recently; one difference only consisted in that the mouth-wash was discontinued in my diphtheritic cases, but, on the other hand, the brush applications of chloride of iron in glycerine were made so much the more frequently.

In conclusion, my opinion of intubation may be summed up as follows:

The O'Dwyer method of treating laryngitis crouposa is an operative procedure that will, in hospital practice, supersede tracheotomy in the majority of cases, as this method is even more advantageous than tracheotomy, because the *continuity* of the air passages is maintained, after the operation, and because its performance goes on without wounding.

\* With secondary tracheotomies, Ranke, Gaughófner, and Widerhofer, also, obtained no especial success.

In virtue of my past successes, I look forward to my future essays with perfect confidence, and declare that, even if I could obtain no better results with intubation than with tracheotomy, yet I should prefer intubation in hospital practice, because this operation is more quickly performed, needs less preparation and demands fewer assistants.

\* \* \*

Whatever I have communicated concerning the O'Dwyer procedure, thus far in my report, has been drawn collectively and individually from my experiments in hospital practice. I have performed intubation in private practice, only in a few cases, for the reason that it is difficult to keep the intubated patient, in private practice, continually under proper medical observation. By proper medical observation, I understand, the presence day and night of a physician properly skilled in the intubation procedure. We have seen in the course of this report that the tube may easily be coughed out by the patient, who breathes, for the most part, very well without the tube for some time, yet presently, and often very quickly, severe dyspnoea may supervene, which urgently necessitates renewed intubation. In such cases, if the physician be not on the spot (at hand), the patient may suffocate. Whoever performs an intubation without providing for continual skilled attendance, must be accused of negligence. In the hospital under my charge, uninterrupted medical observation is looked out for; in the few cases in which I did intubations in private practice, one of my hospital assistants stayed in the patient's house day and night for some time. That one must always be prepared for a subsequent tracheotomy on intubated patients in private practice, needs after the foregoing no more detailed account. I must, however, remark that in more than one case by force of urgent indications, I have performed intubation in private practice, to stop asphyxia and to facilitate for the parents the removal of the patient to the hospital.

Intubation can also be turned to advantage in the treatment of laryngitis crouposa in private practice, as when the patient, whom we consider to be in a critical condition, is prepared for tracheotomy, so to speak, by this procedure. In this connection, allow me to refer to a case in my private practice. I was called to the country to perform tracheotomy in a severe case of diphtheritic croup. After arriving at the child's house, I perceived symptoms

of such a character that tracheotomy did not seem practical to me. I found in the child most severe symptoms of carbonic acid poisoning, and was compelled to fear that the patient would die during the operation. Besides diphtheritic croup in the throat of the little 3-year-old patient, a very extensive diphtheritic process showing great destruction, was present. In such cases, tracheotomy, even in hospital practice, is very difficult to do, because instead of the slow and carefully prepared operation, the momentary, that is, quick tracheotomy must be performed. So much the more thorough consideration is demanded, therefore, in such a case in private practice, where our procedure is liable to the severest criticism on the part of the parents, if the operation terminate fatally. Although the parents in this case decidedly wished the operation to be done, yet I did not determine upon tracheotomy, but proposed to the colleagues with whom I was consulting, to do intubation, while tracheotomy was to be performed afterward, if the dyspnoea were relieved, at least in part, by the intubation, and the little patient's strength in some measure improved. As my proposal encountered no opposition, I immediately intubated the almost exhausted child.

The introduction of the tube was successful at the first attempt, and the dyspnoea, beyond my expectations, disappeared entirely, so to speak, through the intubation. The cyanosis vanished, the child began to awake from its soporific condition, opened its eyes, and immediately explained in a whispering tone, that it breathed easier and its sufferings were alleviated. After the expiration of scarcely a quarter of an hour, the little patient's strength was so much improved by the administration of wine, that I could attempt tracheotomy without danger. This was done with the O'Dwyer tube left as it was, and I did not do extubation, by the aid of the cord, until just before the incision into the trachea. I performed the operation slowly and carefully, and the progress was perfectly smooth, although I was obliged to work with strange assistants. The patient lost scarcely two drops of blood, bore the operation with wonderful ease, and I can assert that of my numerous tracheotomies within two years, this was one of the easiest to carry out.\*

For some time, I was of the opinion that intubation in prepar-

\*Unfortunately, the patient died 12 hours after the operation, without, however, a return of the stenotic breathing. The cause of death was exhaustion.

ing for tracheotomy had been attempted by no one else. I was mistaken, however, for recently I learned from American publications\* that O'Dwyer himself had already advised the application of intubation for this purpose.

STATEMENT OF THE CROUP CASES CURED BY INTUBATION FROM  
AUGUST, 1890, TO AUGUST, 1891.

1. Bertha Krause, 1½ years. 1890. Fell ill August 21. Admitted August 24. Angina catarrh. Stenosis, high grade. Intubation August 24, 2 o'clock P. M. On introduction of the tube, copious discharge of muco-purulent secretion; after introduction, perfect relief. Tube coughed out at midnight. New intubation unnecessary. Moderate fever during the course of the disease. Tube retained 10 hours in all. Discharged August 27. Respiration free. Moderate tracheitis. Cured.
2. Anton Petz, 4½ years. 1890. Fell ill November 27. Admitted December 2. Throat clean. Stenosis, high grade. Intubation December 2, 7 o'clock P. M. After intubation, perfect relief. Tube coughed out at 10 o'clock in the evening. Second intubation at 2 o'clock in the night after renewed appearance of dyspnoea. December 3, expectoration of a croup membrane through the tube. Tube removed at 3.30 P. M. December 4, spontaneous ejection of a croup membrane without the tube. December 5, respiration regular; no fever. Expectoration copious, slimy, putrid. Tube worn 17½ hours in all. Discharged December 7. Respiration free. Slimy, putrid expectoration. Voice slightly hoarse. Cured.
3. Elise Selley, 3 years. 1890. Fell ill December 12. Admitted December 15. Throat clean. Stenosis very severe. Intubation December 15, 3 o'clock P. M. During intubation ejection of croup-membrane. After the operation, perfect relief. At a quarter of five in the afternoon, tube coughed out. Second intubation at 10 o'clock in the evening. December 18, at 4 o'clock in the morning, tube finally removed. Tube worn 56 hours in all. Discharged January 7, 1891. Respiration free. Voice clear. Cured.
4. Ilona Czifra, 3 years. 1890. Fell ill December 28. Admitted January 1. Throat clean. Stenosis, high grade. Intubation January 1, 9 o'clock P. M. After intubation, respiration perfectly free. January 3, extubation at 5 o'clock in the afternoon. Bronchitis slight. Stenosis very

\*W. S. Northrup.—Intubation does not preclude tracheotomy, and the tube may serve as a guide upon which to cut. (*Cyclopædia of the Diseases of Children*, 1890.)

- moderate. January 5, respiration perfectly free. January 18, voice clear. Tube worn 44 hours in all. Discharged January 18, 1891. Respiration free. Voice clear. Cured.
5. **Stefan Hermann**, 3 years. 1890. Fell ill December 7. Admitted December 8. Diphtheria, faucial. Stenosis, high grade. Intubation December 8, 12 M. After intubation, respiration free. December 10, mid-day, extubation. December 11, mid-day, second intubation. December 12, mid-day extubation. December 13, morning, third intubation. December 14, tube permanently removed. December 22, catarrhal pneumonia. January 4, no fever. Tube worn 96 hours. Discharged January 22, 1891. Cured. No fever. Lungs clear. Voice somewhat hoarse.
  6. **Samuel Pack**, 11½ years. 1891. Fell ill January 19. Admitted January 27. Diphtheria, faucial. Severe stenosis. Intubation January 27, 11.30 A. M. During intubation a small pseudo-membrane was expectorated through the tube. Respiration became perfectly free. January 28, extubation at 3 P. M. Bronchitis. Copious expectoration. Aphonia. February 4, bronchitis cured. Voice gradually clearer. Tube worn 27 hours. Discharged February 14. Cured. Voice somewhat impaired. Respiration free.
  7. **Katharina Miko**, 2½ years. 1891. Fell ill January 9. Admitted January 12. Throat clean. Stenosis, high grade. Intubation January 12, 11.30 A. M. After intubation, respiration free. Cord bitten through at 6 P. M. Extubation. At 10 P. M., however, renewed intubation became necessary. January 13, the cord again bitten through. Extubation. Moderate bronchitis. January 23, bronchitis improved, aphonia continues. February 11, voice clearer. Tube worn 26 hours. Discharged February 14. Cured. Voice perfectly clear. Breathing free.
  8. **Sigmund Grossmann**, 3½ years. 1891. Fell ill January 19. Admitted January 23. Throat clean. Severe stenosis. Intubation January 23, 4 P. M. After intubation, breathing free. Tube coughed out at 7.30 P. M. Reintubation. January 24, slight bronchitis. January 25, at 7 A. M., tube occluded. Extubation. Breathing free. At 12 M., reintubation necessary. January 26, at 3.30 A. M., tube occluded. Extubation scarcely embarrassed. January 31, bronchitis moderate. Aphonia. February 4, hoarseness slight. Bronchitis stopped. Tube worn 55 hours. Discharged February 14. Cured. Voice clear. Respiration free.
  9. **Franz Riedl**, 3 years. 1891. Fell ill February 13. Ad-



- mitted February 16. Follicular tonsillitis. Stenosis severe. Intubation February 18, 12 M. During intubation, shreds of pseudo-membrane expelled. After intubation, respiration free. Tube worn four days. Meanwhile, pseudo-membrane shreds continually expectorated. Severe bronchitis. Fever between 39-40° C., intermittent. For ten days, albumen in urine. Tube worn almost uninterruptedly 96 hours. Discharged March 4. Cured. Moderate bronchitis. Respiration free.
10. Franz Buzasi, 4 years. 1891. Fell ill February 25. Admitted February 25. Throat clean. Stenosis, high grade. Intubation February 25, 5 P. M. During intubation, a pseudo-membrane expelled. Complete relief. After 36 hours, tube permanently removed. No fever. Tube worn 36 hours. Discharged March 4. Cured. Respiration free.
  11. Leopold Kreisler, 2½ years. 1891. Fell ill February 27. Admitted March 1. Throat clean. Stenosis, very severe. Intubation March 1, 3 P. M. After introduction of the tube, respiration free. Tube worn seven days with one or two interruptions daily. Bronchitis moderate. In the evening, moderate fever. After removal of the tube, increased hoarseness. Tube worn 154 hours. Discharged March 17. Cured. Voice somewhat hoarse. Respiration free.
  12. Wilhelm Rakovszky, 2½ years. 1891. Fell ill February 28. Admitted March 2. Faucial diphtheria. Very severe stenosis. Intubation March 2, 11 A. M. After intubation, cyanosis disappeared. Breathing became free. After 36 hours, tube coughed out. Progress almost without fever. Hoarseness slight. Tube worn 36 hours. Discharged March 15. Cured. Breathing free. Voice somewhat hoarse.
  13. Josef Friede, 3 years. 1891. Fell ill March 12. Admitted March 15. Diphtheria, faucial. Severe stenosis. Intubation March 15, 6 P. M. After intubation, breathing became free. After 36 hours, extubation. Moderate bronchitis, with slight increase of temperature. Tube worn 36 hours. Discharged March 22. Cured. Breathing free. Voice clear.
  14. Anna Horubsky, 2¾ years. 1891. Fell ill March 18. Admitted March 22. Diphtheria, faucial. Very severe stenosis. Intubation March 22, 7 P. M. After intubation, breathing became free. March 24, at 10 A. M., extubation. Tube is no longer employed. Hoarseness. Bronchitis slight. Tube worn 39 hours. Discharged April 6. Cured. Breathing free. Voice clear.

15. Gisella Halassy, 5 years. 1891. Fell ill March 28. Admitted March 30. Throat clean. Stenosis, high grade. Intubation March 30, 11.30 A. M. On insertion of the tube, a pseudo-membrane, 3 centimetres in length, was ejected. In the evening, a tube one size larger was introduced, because she had coughed out her tube. On March 31, extubated for a short time. Reintubation. Extubation April 1, at 5 P. M. Discharged April 7. Cured. Respiration free. Voice clear. Slight paralysis of the throat.
16. Ida Macsik, 9 years. 1891. Fell ill April 3. Admitted April 4. Extensive faucial diphtheria. Voice hoarse. Intubation April 6, 12 M. During intubation, copious expectoration of membranes. Afterwards, breathing free. Extubation on April 7, at 12 M. April 8, aphonia, breathing somewhat embarrassed. Medium quantity of albumen in urine. Tube worn 24 hours. Discharged April 14. Cured. Breathing free. Voice clear.
17. Eugene Koranyi, 3 years. 1891. Fell ill April 3. Admitted April 5. Diphtheria, faucial. Very severe stenosis. Intubation April 5, 5 P. M. After intubation, respiration free. On April 6, extubation at 4 P. M. At 4.30 P. M., reintubation necessary. Membrane ejected through tube. On April 7, extubation well borne two hours. On April 8, the tube again removed for two hours. Moderate bronchitis. On April 9, extubation well borne for three hours. April 10, extubation at 8.30 A. M. Intubation at 2 P. M. April 11, tube permanently removed. Tube worn 136 hours. Discharged April 15. Cured. Breathing free. Voice somewhat hoarse.
18. Frida Saskesz, 6 years. 1891. Fell ill April 3. Admitted April 8. Throat clean. Stenosis, very high grade. Intubation April 8, 8 P. M. After introduction of the tube, a membrane removed. After intubation, breathing quiet. Extubation at 8.45 A. M. April 10. Reintubation at 10 A. M. Extubation, 9 A. M. April 11. Breathing somewhat embarrassed. April 12, breathing free. Hoarseness. Tube worn 58 hours. Discharged April 18. Cured. Breathing free. Voice somewhat hoarse.
19. Julius Nagy. 1891. Fell ill April 3. Admitted April 10. Diphtheria, faucial. Stenosis, high grade. Intubation April 10, 5.30 P. M. After intubation, respiration free. April 12, extubation at 10 A. M. In the evening, breathing somewhat embarrassed. Bronchitis moderate. April 15, hoarseness. Tube worn 41 hours. Discharged April 17. Cured. Breathing free. Hoarseness of lower grade.
20. Katharina Prompianka, 3 years. 1891. Fell ill April 8.

- Admitted April 9. Diphtheria, faucial. Stenosis. Intubation April 10, 10 P. M. After intubation, copious, purulent expectoration. Breathing free afterwards. Extubation at 9 o'clock in the morning, April 12; reintubation one-half hour later. Extubation, 9 A. M., April 13. Intubation again at 11 A. M., April 14. Extubation at 9 A. M., April 15. Again intubation at 10 A. M. April 16, extubation at 9 o'clock. April 19, reintubation at 3 P. M. April 20, permanent extubation at 5 P. M. April 26, slight hoarseness. Tube worn 129 hours. Discharged April 26. Cured. Respiration free. Voice somewhat hoarse.
21. Etel Odepka, 21 months. 1891. Fell ill April 28. Admitted April 29. Laryngitis crouposa. Severe stenosis. Intubation April 29, 6 A. M. After intubation, respiration normal. After introduction of the tube, several membranes ejected. April 30, tube coughed out at 1 A. M.; soon after, reintubation became necessary; tube removed at 5 A. M.; reintubation at 10 o'clock. May 1, tube coughed out at 6 A. M.; quiet breathing afterwards. May 2, respiration quiet; hoarseness; slight bronchitis. May 7, perfect good health; no fever; respiration quiet. Tube worn 43 hours. Discharged May 7. Cured. Respiration free. Voice clear.
22. Charlotte Liptak, 3½ years. 1891. Fell ill April 28. Admitted May 3. Faucial diphtheria, with laryngitis crouposa. Severe stenosis. Intubation May 3, 10 A. M. After intubation, respiration free. May 4, copious, slimy, purulent secretion. Extubation at 1 P. M. Intubation again at 6 o'clock. May 5, fever of high grade; extensive bronchitis; respiration quiet. Extubation at 12 M., which patient bore easily. May 6, respiration quiet; voice hoarse; expectoration goes on. From May 7 to 9, constant fever. May 10, infiltration of the left lower lobe. May 11 to 13, improvement. May 15, infiltration not assignable. May 20, perfect good health; no fever. Tube worn 45 hours. Discharged May 21. Cured. Voice clear. Respiration normal. Lungs clear.
23. Etel Rozbora, 5 years. 1891. Fell ill May 5. Admitted May 12. Diphtheria, faucial. Stenosis increasing until 12 M. Intubation May 12, 12 M. After intubation, respiration normal. May 13, respiration easy. Expectoration of putrid, slimy secretion. May 14, extubation at 10 A. M., after which breathing normal. Throat growing clean. May 15, easy breathing without the tube. May 20, voice somewhat hoarse; throat clean. Tube worn 46 hours. Discharged May 24. Cured. Throat clean. Respiration normal. Voice clear.

24. Bela Reder, 4 years. 1891. Fell ill May 23. Admitted May 25. Laryngitis crouposa. Stenosis, high grade. Intubation May 25, 11.30 P. M. After intubation, copious, putrid, slimy secretion. Breathing became free. May 26, tube forcibly removed at 6 A. M.; reintubation at 10 A. M. May 27, extubation at 7 A. M.; again intubation at 10 A. M. May 28, extubation at 12 M.; reintubation at 11 o'clock that night. May 29, extubation at 12 M.; from this time without tube. Tube worn  $68\frac{1}{2}$  hours. Discharged June 7. Cured. Respiration normal. Moderate hoarseness.
25. Szidonie Schwarcz, 4 years. 1891. Fell ill May 21. Admitted May 27. Laryngitis crouposa. Severe stenosis. Intubation May 27, 3.30 P. M. After intubation, breathing perfectly free. Tube forcibly removed at 9 P. M.; reintubation at 10 o'clock; a membrane ejected through the tube. May 28, respiration easy; symptoms of bronchitis. May 29, tube removed on account of difficult breathing, at 3.30 P. M.; was occluded; breathing became quiet. May 30, respiration quiet. June 3, moderate hoarseness. Tube worn 47 hours. Discharged May 7. Cured. Breathing normal. Moderate hoarseness.
26. Marie Illés,  $3\frac{1}{2}$  years. 1891. Fell ill May 23. Admitted June 1. Laryngitis crouposa. Stenosis, high grade. Intubation June 1, 11 A. M. After intubation, breathing perfectly free; afterwards, expectoration of copious, putrid, slimy secretion, and of a small membrane. June 2, breathing quiet. June 3, extubation, 4.30 A. M. Reintubation at 9 o'clock in the evening. June 4, extubation at 4 o'clock in the afternoon. June 5, respiration free. June 6, no fever; hoarseness. June 10, voice clear. Tube worn  $60\frac{1}{2}$  hours. Discharged June 11. Cured. Respiration normal. Voice clear.
27. Tiberius Abonyi,  $3\frac{1}{2}$  years. 1891. Fell ill June 1. Admitted June 10. Diphtheria, faucial, with laryngitis crouposa. Severe stenosis. Intubation June 10, 9 A. M. After intubation, perfect ease; expectoration of abundant, slimy secretion. On June 11, breathing quiet. Extubation at 3 P. M. June 12, scarlet flush. June 13, respiration free; throat cleaner; slight bronchitis. June 15, flush disappeared. June 16, slight hoarseness. June 17, throat clean. Tube worn 30 hours. Discharged June 17. Cured. Respiration normal. Voice somewhat hoarse. Throat clean.
28. Béla Reisenleitner, 10 months (nurseling). Fell ill June 7. Admitted June 19. Diphtheria, faucial, with laryngitis crouposa. Severe stenosis. Intubation June 19, 9 A. M.

After intubation, respiration normal; copious, slimy secretion; somewhat later a small membrane expectorated. On June 20, tube forcibly withdrawn at 6 A. M.; reintubation at 9 o'clock, after which, breathing again normal. June 21, tube coughed out at 3 A. M.; reintubation at 5 o'clock; throat cleaner. June 22, 8 P. M., tube forcibly withdrawn; breathing free. June 23, respiration without the tube perfectly free. June 24, breathing quiet; slight cough; hoarseness continues; throat becomes clean. Tube worn 78 hours. Discharged June 26. Cured.

29. Mathilde Kreisel, 2½ years. 1891. Fell ill June 16. Admitted June 16. Diphtheria, faucial, with laryngitis crouposa. Severe stenosis. Intubation June 22, 7 P. M. After intubation, copious, slimy secretion; respiration became free. June 23, breathing normal. June 24, tube removed at 3 P. M.; reintubation at 6 o'clock. June 25, coarse rattling noises; breathing normal. June 26, extubation at 4 o'clock, afternoon; reintubation at 10 o'clock. Very slight accumulations in the throat on June 27. Extubation at 9 A. M. June 28, reintubation at 10 o'clock in the evening. June 30, cough looser; noises fewer. Extubation July 1, at 10 A. M.; breathing free; slight expectoration. July 3, no fever. Tube worn 184 hours. Discharged July 10. Cured. Respiration normal. Voice clear.
30. Irene Malya, 2½ years. 1891. Fell ill June 17. Admitted June 23. Diphtheria, faucial, with laryngitis crouposa. Stenosis, gradually increasing. Intubation June 29, 11 A. M. After intubation, copious expectoration of slimy, putrid secretion; respiration perfectly free. June 30, respiration normal; throat cleaner; extubation at 3 P. M. July 1, reintubation at 8 o'clock in the evening. After discharge of abundant slimy secretion, the breathing is free. Extubation at 3 P. M. July 3, breathing free. July 6, breathing without the tube, quiet; rare cough; complete aphonia. July 9, voice somewhat improved. Tube worn 95 hours. Discharged July 18. Cured. Respiration normal. Voice somewhat hoarse.
31. Michael Podleszek, 2 years. 1891. Fell ill June 22. Admitted June 30. Diphtheria, faucial, with laryngitis crouposa. Severe stenosis. Intubation June 30, 10 A. M. After intubation, breathing normal. July 1, tube forcibly withdrawn at 10 A. M.; reintubation at 1 P. M.; breathing free after profuse ejection of slimy secretions. July 2, tube coughed out at 2 P. M.; reintubation at 11 o'clock. July 3, tube borne well. July 4, tube coughed out at 9 A. M.; reintubation at 10 o'clock. July 6, tube removed

- at 9 A. M.; throat clean. July 8, normal breathing without tube; symptoms of bronchitis; hoarseness. July 15, bronchitis gone; hoarseness better. July 19, hoarseness very moderate. Tube worn 129 hours. Discharged July 21. Cured. Breathing normal. Voice somewhat hoarse.
32. Michael Tatter, 2 years. 1891. Fell ill June 30. Admitted July 1. Diphtheria, faucial, with laryngitis crouposa. Moderate stenosis. Intubation July 2, 7 A. M. After intubation, some shreds of membrane ejected with an unusual quantity of slimy, putrid secretion, upon which the breathing is perfectly free. Tube coughed out at 11 o'clock in the morning; breathing free; reintubation at 11 o'clock, on account of suffocation. July 3, tube coughed out at 2.30 A. M.; reintubation at 12.30 M.; at 3 o'clock, however, tube again coughed out; throat almost clean; little albumen in urine. July 4, respiration without tube, easy; unusual amount of purulent secretion; light cough; voice somewhat hoarse. July 6, moderate bronchitis; breathing free. Tube worn 10 hours. Discharged July 18. Cured. Breathing normal. Voice clear.
33. Géza Szidon, 3 years. 1891. Fell ill July 9. Admitted July 12. Diphtheria, faucial, with laryngitis crouposa. Medium stenosis. Intubation July 12, 10 A. M. After intubation, profuse slimy secretion. After expectoration of several small membranes, respiration free. Tube coughed out at 5 P. M. July 13, reintubation at 11 P. M. Tube removed at 11 A. M. July 14, reintubation necessary at 11 P. M. Tube coughed out at 6 A. M., July 15; afterwards quiet. July 17, voice clear. Tube worn 50 hours. Discharged July 21. Cured. Respiration free. Voice clear.
34. Eleonora Pogany, 4 years. 1891. Fell ill May 17. Admitted June 2. Scarlet fever, with diphtheria, faucial, and laryngitis crouposa. Moderate increasing stenosis. From June 1, stenosis very severe. Intubation June 3, 9 P. M. After intubation, breathing free. June 4, tube removed at 5.30 A. M.; at 8 o'clock, severe suffocative attack suddenly; intubation performed in the midst of complete asphyxia; after artificial respiration for a long time, the patient rallied; at 9 o'clock, respiration free; symptoms of catarrhal pneumonia. June 5, extubation at 9 A. M. Intubation at 10 o'clock. June 7, tube removed at 9 A. M. June 15, respiration normal; hoarseness continues; throat clean; pneumonia symptoms gone. July 1, breathing quiet; voice still hoarse. Tube worn 121½ hours. Discharged August 11. Cured. Respiration free. Voice clear.

35. Ladislaus Farkas, 4½ years. 1891. Fell ill July 17. Admitted July 20. Laryngitis crouposa. Severe stenosis immediately after admittance. Intubation July 20, 6 P. M. After intubation, the respiration becomes gradually free; at night, much slimy, purulent secretion expectorated; tube coughed out at 8.30, on July 21; reintubated at 11.30; A. M.; tube coughed out at 9.30 P. M. July 22, respiration quiet; reintubation at 5 P. M., after which breathing is free; tube removed July 24; respiration easy; laryngeal cough. July 29, cough continues; breathing normal. Tube worn 63½ hours. Discharged August 16. Cured. Breathing free. Voice clear.
36. Josef Kertész, 2 years. 1891. Fell ill July 4. Admitted July 5. Diphtheria, faucial, with laryngitis crouposa. Severe stenosis. Intubation July 5, 10.30 P. M. After intubation, slimy bits profusely ejected; breathing becomes perfectly free; tube forcibly withdrawn at 8.30 A. M. on July 6; at 9 o'clock, reintubation. July 8, tube removed at 9 A. M.; breathing free until 2 P. M.; intubation; urine ordinary, containing albumen. July 10, tube removed at 9 A. M.; reintubation necessary at 11 o'clock; throat growing clean. July 12, tube removed at 9 A. M.; reintubation at 8 o'clock in the evening; throat clean. July 14, tube removed at 8 A. M.; reintubation at 9 o'clock in the evening. July 16, tube removed at 7 o'clock. July 20, respiration free; voice clear. July 25, appearance of scarlet flush. Discharged August 25. Cured. Tube worn 27 hours.
37. Karl Rigo, 3 years. 1891. Fell ill July 25. Admitted July 26. Diphtheria, faucial, with laryngitis crouposa. Severe stenosis. Intubated immediately after admission, at 9 o'clock. After intubation, a great many slimy masses and several small membranes expectorated; breathing became perfectly free. July 27, tube removed for the purpose of feeding at 9 A. M.; reintubation at 10 o'clock; tube removed at 9.30 P. M.; reintubation at 10 o'clock. July 28, a red flush appears on the body; from the nose, a thin, serous secretion runs. July 29, tube removed at 8 o'clock; breathing free; cough; hoarseness. August 10, voice clearer. Tube worn 69½ hours. Discharged August 30. Cured. Respiration free. Voice clear.

## BOOK REVIEWS.

MILK. By E. F. BRUSH, M.D. Printed by Wynkoop, Hallenbeck Crawford Co., New York and Albany. 1898.

THE ASSOCIATION OF HUMAN AND BOVINE TUBERCULOSIS. By E. F. BRUSH, M.D. Same printers. 1898.

These two little books, formed of papers presented at medical meetings during the last few years, present many novel ideas. The fact that Dr. Brush is also a veterinary and a dairyman, has enabled him to make many observations impossible to the ordinary man. As a result, he is an earnest advocate of certain reforms in the method of milk production, which seem to us very sensible and desirable. While cleanliness in all its details in the methods of care, feeding, stabling, milking and delivering is urged, as has often been done by others, special emphasis is laid upon the breed, food, sexual conditions, etc., of the animal. Close parallels are drawn with women who are nervous, or tuberculous. The results of feeding babies on milk given by cows cruelly treated, or improperly fed, or unduly excited, has been carefully noted,—the first such reports we have seen. While a greater number of observations will be needed before the great milk-producing business is so radically reformed as he desires, we commend the books to every physician's careful consideration. We agree with the author that as physicians we should pay far more attention to the source of the milk than has been our custom.

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AN AMERICAN TEXT-BOOK OF THE DISEASES OF CHILDREN. Including special chapters on Essential Surgical Subjects; Orthopædics; Diseases of the Eye, Ear, Nose and Throat; Diseases of the Skin; and on the Diet, Hygiene and General Management of Children, by American Teachers. Edited by LOUIS STARR, M.D., assisted by THOMPSON S. WESTCOTT, M.D. Second edition. Revised. Published by W. B. Saunders, 925 Walnut Street, Philadelphia, Pa. 1898. Price, cloth \$7.00; sheep or one-half morocco, \$8.00. For sale by subscription.

The very cordial reception given the first edition of this excellent text-book is, we feel sure, to be more than duplicated when the profession shall become acquainted with this second revised and enlarged edition. So well known is the work, and so generally accepted is its authority, that we need not describe it in detail nor name the authors, who are all of national, and many of them of international repute. We may, however, be allowed to



say a few words on the new chapters, and on those which have been largely unwritten. Of the former there are three, "Modified Milk and Percentage Milk Mixtures," "Lithæmia" and "Orthopædics."

In the first of these, Dr. Westcott gives with approval the methods employed by the Walker-Gordon laboratories in obtaining pure milk with an unvarying composition. Since the prescription method cannot, however, be largely employed outside of large cities, he presents his plan for home modification. This differs from those of Rotch and of Holt in that he employs 12 per cent cream and whole milk. By this method he claims that the strength of the food may be increased without requiring frequent changes in the formula.

Lithæmia is in line with the stress which modern medicine lays on the presence of uric acid in the system in undue quantities. Dr. Rachford believes that uric acid is but one of these evils, and discusses very interestingly the sources of these bodies, the results of their presence in children, and the best means of freeing the system of them. The chapter on orthopædics is longer than either of the other new ones, freely and well illustrated and eminently practical. Manifestly in the 28 pages allowed him, Dr. Moore cannot enter into the detailed discussion of etiology or possible treatment. But the diagnosis, prognosis and most accepted treatment of each of the most common deformities of childhood are given in a most helpful way.

Large additions to the chapters on "Typhoid Fever," "Rubella," "Chicken Pox," "Tubercular Meningitis," "Hydrocephalus" and "Scurvy," and the revision of the articles on "Infant Feeding," "Measles," "Diphtheria" and "Cutinism" plainly indicate to every well informed physician that the editor has endeavored to embody in this edition all the latest pediatric information. The printing, illustrations, etc., are of Saunders' best, which is commendation enough.

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R. L. POLK & Co.'s MEDICAL AND SURGICAL REGISTER OF THE UNITED STATES AND CANADA. Fifth revised edition. 2500 pages. Published by R. L. Polk & Co., Detroit.

The publishers of the Register are doing a great work for the profession in furnishing between the covers of one volume, so much information of practical value to the practitioner—a list of the physicians, with school practiced, college, and year of graduation, medical colleges, societies, hospitals, asylums, medical laws, climatic and mortality statistics in the United States and Canada.

From our examination of the book, it appears to be marvelously free from errors, considering the fact that it contains upwards of two millions of items of information.

The Register is worthy of the support of the profession at large and should be in the library of every progressive physician.

# ANNALS OF GYNECOLOGY AND PEDIATRY

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## ORIGINAL COMMUNICATIONS

### PELVIC DISEASE AND INSANITY.

ERNEST HALL, M.D.

THE ever-increasing burden of the insane that from year to year the state is compelled to bear should call the attention of those who have the national welfare at heart, to the necessity of a closer investigation as to the causes and to the elaboration of more effectual remedial measures. Investigation is being prosecuted in many departments with encouraging results. Nature is being compelled to disgorge her secrets as to the causation of many diseases, but with the ever-increasing illumination the shadows still lurk in many quarters, and over no department are the clouds of ignorance denser than over the afflictions of our insane population. Is there no balm in Gilead, no one to loose some of these unfortunates and let them go? Must present space be overcrowded and new asylums be built?

The determination of the various causes of insanity is, without doubt, one of the most important pathological problems of today, and one in which the profession as a whole should become sufficiently interested to contribute what mite of information each member may possess, as the result of his individual experience in this matter. It is not necessarily to those in official positions only—the medical superintendents and assistants of our various asylums—that one must look for the solution of this problem. It is not always the case that the product of the political machine is

fitted either by training or experience for the work entrusted to him, yet we have a Hobbs of London and a Burgess of Montreal who in face of opposed ignorance have succeeded in giving to the "hopelessly insane" a measure of health and comfort. We are yet but upon the threshold of knowledge with reference to this subject, and all information that can be offered should be readily received and thoroughly sifted until this much neglected subject be brought to a degree of perfection, at least equal to that of other departments of medical science.

In a province like British Columbia, but emerging from the pioneer period, subject to booms and strictures somewhat more acute than the older provinces, with a population composed too largely of adventurers, remittance men, "degenerate scions of noble ancestry," Asiatics *ad nauseam*, and subject to occasional attacks of Klondimania and political indecision, it is not surprising to find our insane population comparatively large; but when we look to Ontario, possibly the most favored of all our provinces in resources, climate, and in civil, religious and educational advantages, with industrial competition at a minimum,—in fact, where all the forces that should tend towards the development of an ideal race appear to focus, why, we ask, should a province under such exceptional conditions, give one insane to every three hundred and twenty-five of the population? The answer to this question must be sought for in a direction other than that in which alienists have been searching, nor is it to be solved by the coining of new nomenclature by the nervous specialist. Theoretical speculations with regard to the psycho-neurosis, and abnormalities of the neurosis, may be more interesting than profitable, while campaign theories that determine the amount of mental aberration by the number of gallons of spirits consumed per capita is least reasonable.

An excellent definition of insanity is "a diseased or disordered condition or malformation of the physical organs through which the mind receives impressions or manifests its operations by which will and judgment are impaired and the conduct rendered irrational." With the almost universal acceptance of insanity being due to physical disease, and that "mental disease" aside from functional or organic abnormality is a myth, we may look for the causes of insanity first in the chief organ of the mind, the brain, and subsequently in other organs in the degree of the closeness of

their connection with the brain. Sufficient evidence is at hand to show that the conception of insanity as related to primary disease of the brain alone, must be abandoned, yet we cannot but admit in all cases of insanity of extra cerebral origin a secondary toxic, reflex or functional disturbance of the cortex. Admitting the action upon the cerebral cell of a remote irritation, we must also admit the possibility of such irritation passing beyond the limits of repair, and thus permanently injuring the cell, producing a pathological condition of the cortex leading to permanent insanity. Upon this hypothesis we must admit the possibility of a given case of insanity caused by irritation from a pelvic or other remote organ, persisting after the removal of the original cause. The intricate nervous connection between the brain and the sexual organs requires no demonstration, nor does the relationship existing between a psychical state and that of local congestion and organic activity; in fact, the continuance of animal life depends upon such relationship, and the nervous channel through which such results are made possible is the same channel by means of which a local pelvic irritation may be the cause of cerebral congestion, and produce an alteration of normal cortical function, giving rise to, and indicated by, abnormal mentality.

It is not within the scope of this paper to discuss the various pathological conditions of different organs that may stand towards insanity in the relation of cause and effect, but to direct attention to disease of the female sexual organs as a factor of no small importance in this connection, not forgetting the fact that the principles herein stated and the deductions that may follow have an application by no means indirect to the opposite sex. It has been stated that insanity exercises a peculiar influence upon the sexual organs of women. Kirkley, of Toledo, states that out of 595 inmates of an asylum, 230 exhibited perverted sexual function, but he is silent as to organic disease; in fact, there is nothing to lead us to suspect any result other than functional.

Another question of importance is in order—do operations upon the female organs cause insanity? Within my knowledge of British Columbian surgery, only one case has been known to follow any surgical measure, and that after abdominal section for tubercular peritonitis in a lady. At the meeting of the American Medical Association, June, 1898, Dr. Moyer of Chicago said "there was no difference in the nervous and mental effects follow-

ing operations upon the pelvic organs from those following operations in other parts of the body." Mundé, before the Woman's Hospital Society, November, 1897, stated: "In a certain number of cases I am sure that temporary mental disturbance following the operation within the first week or two (muttering delirium, hallucinations, melancholia), has been due to iodoform toxæmia, since the symptoms gradually subsided when the iodoform dressings were discontinued. Undoubtedly, predisposition to hysteria and insanity plays a highly important rôle in the production of mental disturbances under physical and mental excitement of any kind, and it is these patients chiefly who are likely to furnish examples of the variety coming under this category. Therefore, an operation on any part of the body may in such individuals produce such a result."

The following cases of insanity have come under my observation within the last ten months. In all of them a pelvic examination was made. An anæsthetic was used where the patient resisted.

CASE I. (Reported in full in *Canadian Practitioner*, April, 1898)—Mrs. M. F., aged 35, two children, excellent family history, previous health good. After a prolonged strain due to child's illness, she showed signs of melancholia, was placed under charge of a trained nurse, but not improving was committed to the provincial asylum, where she remained two years and eight months. Her asylum life was characterised by extreme violence, suicidal tendency with disposition to bite and otherwise injure the attendants; was considered by the matron as one of their worst cases, and by the medical superintendent as hopeless. In fact, her husband was told, when he brought her home, that she was not a fit case for surgical operation, etc.

Examination showed right ligament thickened, left ovary prolapsed, uterus fixed and slight perineal rupture. Upon this finding, operative treatment was recommended, and accepted by the husband and friends. The uterus was curetted; upon section, the right ovary was found cystic with tubal adhesions, left ovary adherent in cul-de-sac with tubal extremity closed. Recovery from operation normal. No change was detected in the mental condition until the fourteenth day after the operation, when she conversed a little and appeared to appreciate the services of her attendants, and we were able to relieve her of the bandages by

means of which she had been tied to the bed. Improvement continued, and within a week she was restored to her former self. Thirty-five days after the operation she returned to her home and family, and today, after nine months, she enjoys perfect physical and mental health. This case comes under Dr. Hobbs's classification of "the inflammatory group," in which he has had a mental recovery rate of 49 per cent, with 23 per cent additional who improved.

CASE II.—Mrs. C., aged 57. Married, several children, family history excellent. For several months had suffered from vague pelvic pain, had been under medical treatment without relief, also experienced some financial trouble. Melancholia slowly developed and she was committed to the asylum, where she remained one year. A pelvic examination under anæsthesia showed lacerated peritoneum, laxity of vaginal walls, but no gross abnormality. Upon this finding I did not recommend treatment, but after conference with the friends who desired nothing to be left undone that might afford any hope, I opened the abdomen and found large varicocele of both broad ligaments with calcareous deposits, and cystic degeneration of the pelvic peritoneum. Appendages removed. Post operative history normal. Physical condition much improved, mental condition considerably better, so much that she is easily managed at home and takes not a little interest in domestic affairs; has made not a few clothes for her grandchildren and is better than we had expected. Varicocele of the pampiniform plexus is a condition frequently met with in abdominal surgery, and rarely if ever diagnosed. This condition is supposed to depend primarily upon loss of support through rupture of the perineum. The connection between varicocele and exhaustion of nervous energy has been fully discussed by Professor Etheridge, before the Chicago Gynecological Society, November 19, 1897. He says, "An inquiry into the vascular supply of the pelvis, and the effect on it of a lacerated perineum, reveals much. The arteries are few and simple. The veins are numerous, complicated and much given to presenting to us the peculiarities we call 'plexuses.' Each organ has a venous plexus, such as the uterine plexuses, the broad ligament (ovarian and tubal) plexuses, and the rectal plexus. Even the very entrance to the pelvis, the vulva, is supplied with a plexus. The walls of these veins are often thickened and contain phleboliths. The effect reflexly, on

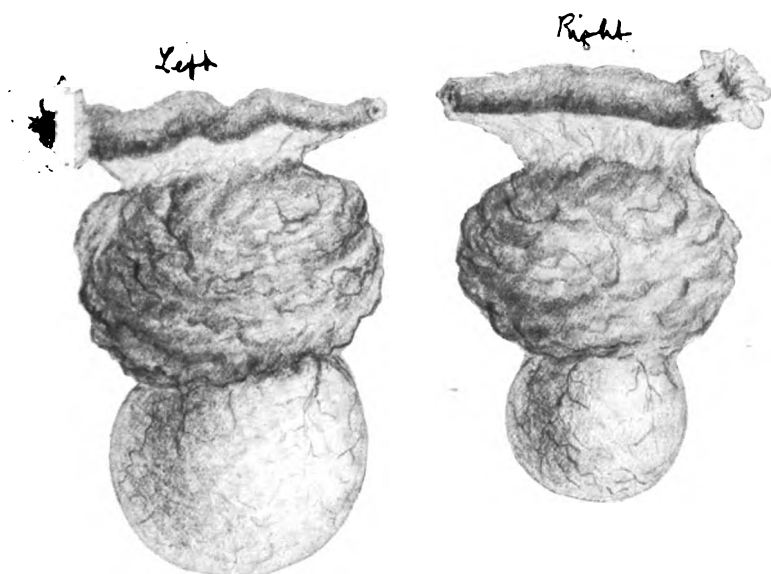
a woman of the varicose condition of her vaginal and rectal plexuses arising from perineal tears, is decided and often destructive of her nervous system's integrity. In by far the large majority of such, we see the digestive system breaking down first. This leads in time to deficient sanguification. This introduces anæmia, sooner or later, with its protean evils. The brain and spinal cord soon voice their partial starvation by an exaggeration of the reflexes. Fatigue comes on easily. Insomnia often appears. Altogether, the once sound woman becomes a wreck sooner or later."

CASE III.—Mrs. R., aged 37, married, no children. Insanity, suicidal and religious; had been in asylum two years. Examination under anæsthesia showed retroversion of extreme degree with dense adhesions. No other abnormality detected. Operation advised, but husband would not give his consent. She is still in asylum giving no indications of improvement. \* \* \* Operated upon October 8, and on October 12 was doing well physically and vastly improved mentally. Has talked no religious nonsense since the operation.

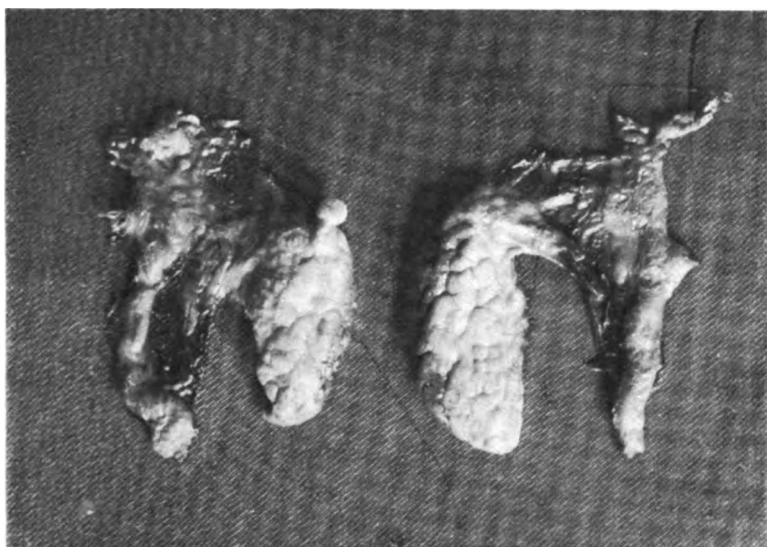
CASE IV.—Miss C., aged 24. Melancholia of two years' duration following news of brother's sudden death. Examination under anæsthesia showed pelvic organs normal.

CASE V.—Mrs. W., aged 40. No children, subject to epilepsy; inmate of asylum for four months, insanity of very mild type. Examination under anæsthesia showed undeveloped uterus and ovaries; no operation advised. Recovery from mental trouble.

CASE VI.—Mrs. J., aged 28. Three children, youngest three years old; no tuberculous history; several miscarriages since. Suffered for four years with pelvic pain; some better while carrying last child. In January of this year her husband became ill with la grippe followed by pneumonia. During his sickness the patient acted as nurse and took a share in the household duties. Towards the end of the second month she complained of severe backache, and exhibited well-marked indications of exhaustion. A pelvic examination showed endometritis, retroversion and great tenderness; was placed upon appropriate treatment, including the Weir Melchell system, but without improvement. The hysterical condition passed to one of religious melancholia, which appeared to remain permanent for a few weeks. Finding all unavailing, I decided to try surgical measures, curetted, found



CASE VI.



Specimens removed from Mrs. Jones, age 50, on October 12, 1898. Had had menstrual delirium fifteen months. Previous history of cruel treatment by husband who struck her on the head with his fist. Some sort of pelvic inflammation since he was suspected of irregular life, possibly gonorrhoeal. In Asylum fourteen months. Left broad ligament had large varicosity. Adhesive band from uterus to rectum. Slight inflammatory adhesions about fimbriae. Uterus patulous





ovaries enlarged to double their normal size, and cysts one inch in diameter attached to each; there were also tubal adhesions. Appendages removed. Recovery from operation normal. Mental condition some better for few days, but within a week was decidedly worse. Sleep became impossible without large and ever-increasing doses of hypnotics. Six weeks after operation symptoms of cerebral compression appeared, paralysis, strabismus, etc., with coma and death following seven weeks after the operation.

Although this patient presented sufficient pelvic disease to justify surgical measures under ordinary circumstances, the result showed that operation in this case was not indicated and possibly detrimental, if, indeed, it did not hasten the fatal result. The mistake of undue haste need not be repeated. In future I shall abstain from operating until the possibility of acute cerebral cause is eliminated. It might be well to suggest that at least one year of expectant treatment be given, following the appearance of mental trouble, before operative measures be tried.

CASE VII.—Mrs. H., aged 46. Six children, considerable domestic infelicity. Took la grippe, followed by ethmoiditis of moderate severity; no septic sinuses. Attempted to commit suicide; wandered away from home several times; was committed to asylum for a few months, returning apparently well. A pelvic examination revealed no abnormality.

CASE VIII.—Mrs. K., aged 46. Several children, youngest thirteen years. Had "inflammation" after childbirth. Mild insanity of twelve years' duration, at first intermittent, melancholic and suicidal. Pelvic examination without anæsthesia showed perineal tear complete, left tube and ovary one mass of adhesions—possibly old tubo-ovarian abscess—very tender to the touch. Patient said, "The pain begins there, passes up into my body, then I get nervous." Operation advised, but refused by the husband, who said that since she had been sick so long he preferred leaving the case in the hands of the Lord. From this logic I fled, confounded with serious thoughts of the possibility of a contagious element in this matter.

CASE IX.—Mrs. W., aged 25. Two children, youngest five years old. Miscarriage three years' ago followed by "blood poison." After recovering she suffered from pain in the back and side. On October 11, 1897, while washing she became, ac-

according to her own story, unconscious and did not recover herself until November 24, when she had but a few hours' consciousness, relapsing again into the same condition as before and remaining until December 20 of the same year. Her condition was described by her medical attendant as acute mania, caused by "congestion of the womb." This case came under my observation in July of this year, when I found her exhibiting typical hysterical symptoms with marked *globus*. After a few days of bromides, valerian and discipline, I found enlarged and intensely congested cervix, retroversion and enlarged ovary. With little persuasion she consented to treatment, viz., amputation of cervix, curettage, removal of right cystic ovary, and ventrofixation. Recovery complicated with stitch abscess. The patient is now free from pain, and absolutely well.

The history of this case indicates a predominance of the hysterical element near the borderland, if not actually one of mania.

CASE X.—Mrs. B., aged 31. Family history excellent, but was considered a somewhat nervous child. Two children, youngest seven years; had "inflammation" after birth of last child. Previous to and during menstruation, patient would become excessively nervous for a few days and then moderately irrational. It was found necessary to commit her to the asylum, where she remained with occasional short intervals for some four years. For the last six months she had been at her father's home and appeared somewhat better. Pelvic examination showed slight perineal rupture, endometritis, enlarged and prolapsed ovary. With the full consent of the patient and friends, I curetted, removed the left appendage, ovary hard and but the size of a small cherry; the right was enlarged and cystic. The tube was removed, the right ovary resected and the small amount, chiefly cortical matter, that was left was fitted cap-like over the stump of the ligament and attached with gut. Post operative history normal. It is yet too early to report upon the mental condition. However, so far all is satisfactory.

TABLE GIVING SUMMARY OF CASES.

NAME.	VARIETY OF INSANITY.	DURATION.	HISTORY OF PELVIC DISEASE.	VARIETY OF PELVIC DISEASE.	SURGICAL TREATMENT.	RESULT.	
						PSYCHICAL.	MENTAL.
Mrs. M. F.	Violent and suicidal.	Two years, ten months.	None.	Ovarian prolapse; fibroid adhesions; partial rup. perineum.	Removal of appendages and curettage.	Cure; gained 35 lbs. weight.	Cured.
Mrs. C.	Melancholic.	One year.	Pain in side and back for six months.	Rup. perineum and varicose of tubo-ovarian plexus; peritoneal cysts	Removal of appendages and curettage.	Improved.	Improved.
Mrs. R.	Religious delusions.	Three years.	None.	Retroversion with dense adhesions.	Treatment advised, but not accepted.	None.	None.
Miss R.	Melancholic.	Two years.	None.	None.	None.	None.	None.
Mrs. W.	Mild delusions.	Six months.	None.	Undeveloped condition of pelvic organs.	None advised.	Improved.	Cured.
Mrs. J.	Melancholic; religious.	Three months.	Four years of pelvic pain.	Enlarged and cystic ovaries-tubal adhesions.	Curettage and removal of appendages.	Worse.	Worse.
Mrs. H.	Suicidal.	One month.	None.	None.	None.	Same.	Better.
Mrs. K.	Suicidal; melancholic.	Twelve years.	"Womb" disease and "inflammation" after childbirth	Tubo ovarian adhesions; complete perineal rupture.	Advised, but not accepted.	None.	None.
Mrs. W.	Acute mania.	Two months.	"Blood poison" following miscarriage.	Enlarged cervix; retroversion and enlarged ovary.	Amp. cervix; removal of cystic ovary; ventrofixation.	Improved.	Is well.
Mrs. B.	Pre-menstrual excitable.	Five years.	"Inflammation" following birth of last child.	Cystic and cirrhotic ovaries and prompse.	Left appendage removed; right ovary resected.	Too early to report.	Too early to report.

It would be presumptuous to draw conclusions from the study of but ten cases, and but four submitted to treatment, yet there are a few deductions that we may be justified in making that correspond somewhat closely with the results of those whose opportunities afford scope for wider observation and deeper investigation. We note:

(1) That five, or 50 per cent, gave a history of pelvic pain or inflammatory trouble.

(2) That three, or 33 per cent, gave a history of sepsis following childbirth or miscarriage.

(3) That seven presented well marked disease of the sexual organs, while one showed an undeveloped condition; that is, 80 per cent showed gross abnormality of the pelvic organs.

(4) That of those who had marked pelvic lesion, two had never complained of any local trouble, and so far as we could determine had no suspicion whatever of the presence of disease.

(5) That of the four submitted to treatment, one was completely cured physically and mentally, one improved and is still progressing, one died from cerebral disease, and one progressing favorably, but not yet sufficiently advanced to be classified.

(6) That these results coincide with those of Dr. Hobbs in his work in the London Asylum, as reported at meeting of Ontario Medical Society.

Again we note that the direct history of puerperal sepsis in three cases, with a grave probability in two others, is an additional reminder that the greatest care should be exercised, asepsis and, if necessary, antisepsis, in the management of all cases of abortion, miscarriage and normal delivery.

In conclusion, let it be clearly stated that nothing is further from the purpose of this paper than to suggest operative interference with the pelvic organs as a panacea for mental disease, but in a very feeble way to rally to the support of those, who, strong in the knowledge that experience alone can give, and firm in the conviction that the time has come when a new proclamation of emancipation must be published to those in mental slavery, are leading us in a campaign against officially retrenched and fortified conservatism. We ask that our insane mothers, sisters and daughters be given the same consideration and treatment that we grant to those whose mentality is not disturbed. If Dr. Hobbs has, out of 110 operated upon for gross lesions of the

sexual organs, restored to mental health 40, and has improved an additional 25, and that without a death attributable to the operations; and if the limited experience of others corresponds with these results, it becomes incumbent upon us (1) to make a thorough pelvic examination of all women before signing papers of commitment, and if pelvic disease be found, to give such patients the benefit of modern gynecological treatment; and (2) to unite in urging upon the respective provincial governments the necessity of thorough and systematic gynecological treatment of their insane population.

Victoria, B. C.

### SOME REMARKS ON HOSPITAL ABUSE.\*

FREDERICK C. SHATTUCK, M.D.

HOSPITALS are so beneficent, and the lives of many of us are so bound up in them and their work, that we may at times fail to realize that they have any possibilities of evil, either as regards the public in general or our own profession.

With your permission I shall venture to lay before you a few thoughts which came into my mind on this question, some general subject pertaining to medicine seeming to be more suitable for the address with which it is my great privilege, thanks to your unmerited kindness to me, to open our session.

Though it is over four hundred years since this country was discovered, and more than two hundred and fifty years since real settlements by highly endowed members of the Anglo-Saxon race were effected, the first hospital was founded not much more than a century ago. Until approximately fifty years ago the population was relatively homogeneous, and even the largest cities were small enough for the inhabitants to know each other and each other's affairs. There were few poor, and neighborly succor efficiently met illness and the distresses which so often follow in its train. Then began the great Irish immigration, followed by that from almost every overstocked European country; the older cities grew apace, and new cities sprang up as the tide moved westward.

\*President's address read before the Association of American Physicians, at Washington, May 4, 1898.

The conditions of life changed with enormous rapidity, and every large city developed a class whose earnings or whose lack of thrift do not permit provision against the almost inevitable day when the bread-winner, afflicted with acute or chronic disease, can win no bread, while the requirements of himself and his family can be but little, if at all, diminished.

We all know from personal experience how wonderfully helpful the members of this class are to each other in trouble of all kinds; also that their helpfulness has clearly defined limits. The larger the class grows the more imperfectly are its members acquainted with one another and with one another's special needs; and much less are they, as individuals, known to the easier classes. Thus, organized and public must supplement private and individual help in time of need, and it is natural that the hospital should take a high, if not the first, place among the forms of help. We are all mortal; the vast majority of us are unsound somewhere; illness and disability come to many without any fault on their part. Health is an almost indispensable condition of support and usefulness. Its preservation, therefore, appeals directly alike to the head and heart of the community.

All the first hospitals in this country were founded by private individuals, public spirited, anxious to benefit their less fortunate fellow mortal and fellow citizens. But as cities grow large it is often found necessary for the taxpayers to aid and supplement private effort. We see, then, that the original cause for hospital foundation lay in charity—charity in its best and highest sense. Hospitals were designed to help those who could not help themselves; and it has been and is the pleasure as well as the duty of the medical profession to contribute its full share by rendering its services without direct pecuniary reward. But we should never forget that no physician can do conscientious work in a hospital without indirect reward, a portion of which is pretty sure to be pecuniary. The gain in knowledge, the stimulus to its acquirement, the development of the man and doctor alike, which the honest performance of hospital work surely brings, almost as surely lead to the better performance of private work, and hence to the demand for it. As hospital physicians, we are, I think, sometimes inclined to strike a false balance between the sacrifice of time and strength which hospital work demands and the return, which is none the less real because it is indirect and cannot be esti-

mated with mathematical accuracy. Personally, I believe that this natural return is ordinarily ample, and that any conscious and deliberate attempt on our part to enhance it can only be lowering to ourselves and unfair to the general body of the profession.

And just as there are indirect advantages flowing to physicians from hospitals, so also do they flow indirectly to the rich who endow and maintain them, in that the rich profit by the skill acquired by the staff and by the advance in scientific knowledge secured by the minute study of collected cases of disease. Virtue may be its own, but it is not necessarily its only, reward.

I repeat that the primary purpose of hospitals is charitable; hence their immediate benefits should be reserved for the poor, for those who are unable to pay for medical attendance. Poor and rich are, of course, relative terms, and not easy of exact definition. A person may be able to pay one fee, perhaps several fees, but totally unable to pay for prolonged attendance. Medical attendance, moreover, stands on quite a different footing from almost every other necessary of life. There are different grades of food and clothing, even of fuel and light, between which, within certain limits, one can choose without detriment to health, but with advantage to the pocket. The first cuts of meat are no more nutritious than the lower grades, and style alone may be the larger element in the cost of clothing, to say nothing of the choice of material. But the poorer a person is, the more purely dependent he and his are on his own exertions, the more important is it for him to have the best medical care attainable. Here economy may be the wildest extravagance. This is an aspect of hospital abuse which cannot be lost sight of. There is no clearly discernible line of cleavage, and, therefore, abstract justice cannot be done in every case; as in most other branches of human activity, substantial justice is the best we can hope at present, at least, to attain. Medical charity in hospitals and dispensaries should be freely extended to those who require it, denied to those who do not and from ignorance or parsimony demand it. The community suffers if provision is insufficient or proper access is difficult. The community also suffers if no questions are asked, the independence and self-respect of the laity being undermined, and the medical profession failing to receive returns which justly belong to it. Alike as citizens and professional men, we should carefully scrutinize the claims of every new charitable medical institution,



and refuse our aid and countenance unless satisfied that it is likely to meet a real need in the community.

The same care should be exercised with regard to abuse creeping into existing institutions. The matter lies really in the hands of our profession. If no physician would serve or aid in promoting a medical charity, so-called, founded mainly on sentimental or selfish considerations, such would soon cease to exist, and the millennium would be at hand. There is too much reason to believe that hospitals and dispensaries are sometimes started purely in the selfish interest of members of our profession.

The second great function of hospitals—second in point of time evolution, though not, I believe, in point of importance—is the educational function, the advancement and dissemination of knowledge. On this function I need not dilate to this audience. It is, of course, more obvious to us than to the laity; but their attention is being more and more called to it. They are quick to see the truth and to recognize the powerful stimulus to the staff to do first-class work afforded by the critical eyes of bright students. The clinical teacher must study his cases carefully; compulsion acts more imperatively on him than on the hospital physician who is not also a clinical teacher. The necessities of teaching and the demand for much material from which to select has been used as an excuse for the abuse of hospitals and dispensaries, and to a certain extent such excuse may be valid. Students should become familiar with as wide a range of disease as possible. The didactic lecture in medicine and surgery is slowly but surely falling into the background, teaching becoming more and more clinical. Patients may be made to pay in their persons if not from their pockets. The student and clinical teacher demand material; the practitioner wants patients. When the student becomes a practitioner his point of view changes. But he should not forget that he, when a student, probably gained in remunerative knowledge more than the equivalent of a few cases which, after he has gone into practice, seek advice at a hospital instead of paying his fees. Our direct losses loom up larger than our indirect gains. I do not mean to imply that a teaching hospital is free from responsibility in regard to this matter. I merely want to indicate that there are two sides to this question, at the same time stating my conviction that very little injustice need be done if a due sense of responsibility is felt and influences action.

Complaint in the medical press of hospital out-patient departments and dispensaries seems to be endemic in England, and there has been of late an epidemic in this country; legislation on the subject has even been seriously considered. It is claimed that the doors of these institutions are thrown open so widely as to entail a great hardship on many worthy members of the profession. That there is some ground for these complaints I fear there can be no question. For some eight years I did out-patient work in the Massachusetts General Hospital, and have no reason to believe that the conditions are materially different now from what they were at that time. The number of cases of deliberate intention to avoid payment for advice was, as I remember, small. Some residents of the city, apparently able to pay, came, seemingly without wrong intent, to get an opinion and see how far it coincided with that of their doctors. More came thus from the country, under the impression that the city must contain more wisdom, not knowing whom there to consult, and not having told their regular advisers that they wanted further advice. The reputation of the hospital, and sometimes the idea derived from the name—"Massachusetts General"—that it is a State institution, to the benefits of which as taxpayers they had a right, determined their coming. Not infrequently patients would come, more commonly from out of town, either with their physician or with a letter from him, asking for a consultation, and perhaps a detailed opinion in writing—no light demand, considering the number of patients requiring attention.

For some years now at the Massachusetts General Hospital a paid medical officer questions applicants to the out-patient department as to their circumstances, and refuses entrance to those who do not seem to him proper cases for free advice. It is also his duty to exclude such diseases as measles, scarlet fever, and the like from the waiting-rooms, in order that their spread may be limited. This is a plan which does not involve a hospital in great expense—five hundred dollars per annum at the Massachusetts General Hospital, with an average of about one hundred new patients a day—as the services do not require more than a couple of hours a day, seems to me as efficient as any plan which has been suggested, and one which it is not unreasonable to expect all similar institutions to carry out.

There is another ground for complaint against hospitals, about

which less has been said. I refer to the growing practice of attaching pay-wards to hospitals, which, let me repeat once more, are founded and exist for charitable and educational purposes. Patients who pay from twenty to fifty dollars per week for private rooms ordinarily serve neither of the above purposes, and provision for them here seems to me unfair and improper unless to a very limited extent. This is not a legitimate mode of providing revenue for the care of the sick poor. Our well-to-do citizens are amply able, and I am convinced more than willing, to provide for such cases through gifts, bequests, and taxes. The chances are strong that a hospital cannot be maintained without the resort to this practice is in whole or in part unnecessary to the community in general, and should, consequently, in whole or in part, close its doors until the community in which it is situated grows up to it. One great and well-known hospital derived fifty-five thousand dollars from this source last year. I am told that other great hospitals are making large investments in this field. I am perfectly well aware of the fact that strangers in the city fall ill in hotels, and that residents are for one reason or another sometimes so situated at their abodes that proper care is difficult or impossible to secure. I know what a boon it sometimes is to patient and physician alike to have access to a well-organized hospital. But this need not and should not be a charitable hospital. This class of patients is sufficiently large in every considerable city to maintain one or more hospitals or infirmaries: private in that they are designed for private patients, public in that any physician can send his patient thither and assume personal care of him, making such professional charges as his wisdom and conscience dictate. This is free-trade in medicine. In a large hospital it is, from an administrative point of view, impossible to allow physicians other than members of the staff to care for patients within its walls. The small private hospital or infirmary can be made to yield a good return on the investment, and no injustice is done to anybody. And it seems to me that injustice to somebody is inevitable when well-to-do patients are admitted to hospitals designed for the sick poor. If the staff is allowed to receive fees for attendance on such patients its members are given an unfair advantage over those members of the profession without hospital appointments, and the hospital becomes a sort of medical trust. The indirect benefits of hospital service are quite sufficient. If

the members of the staff are not allowed to take fees the well-to-do patient is injured by receiving gratis services for which he is able to pay and should pay; the time and skill of the attendant is diverted from the sick poor or from such use as he might wish to make of them, and the sum of professional earnings, now none too large, is unfairly diminished. Commercialism tends to degrade the medical profession, and if well-to-do patients are to be cared for in our great hospitals, it seems to me that the evils of free are less than those of paid professional service.

The Massachusetts General Hospital has eight private rooms of the class I now allude to. Years ago the staff itself established the rule that no fees should be received for attendance on inmates of the hospital, and a printed notice to that effect is placed in each of the private rooms.

The hospital physician can keep his private hospital if he will, or he can, just like any other physician in town, send his patients to an infirmary. The charitable and educational institution should not step in to save its staff the trouble of housekeeping and of providing and superintending nursing for patients in easy circumstances. It should not demand of its staff unrequited service save for the sick poor. It should not place any unnecessary obstacles in the way of full and free competition between members of our profession. To the exaction of the payment of a few dollars a week from patients who can afford it, who are treated in the ordinary wards, and who can be used for teaching, if suitable cases, I can see no valid objection. The self-respect of the patient is maintained by rendering some return for much needed care, which his circumstances preclude his securing at home, and no just ground for complaint is afforded practising physicians unattached to hospitals.

In this whole question we have a responsibility which we cannot escape. The more fortunate a man is the more mindful should he be of the rights of others, especially of his professional brethren. The staff of the hospital or dispensary should coöperate fully with the trustees, giving them the full benefit of their more intimate knowledge of all professional matters, and always remember the broad therapeutic principle—"*ne quid noceat*."—*Reprinted.*

135 Marlboro Street, Boston, Mass.

## ECLAMPSIA, WITH A REPORT OF TWO CASES.\*

J. FRANK FORD, M.D.

FIVE years ago I reported to this Society ten cases of eclampsia, seven occurring in my own practice and three being seen in consultation. Of the seven cases, five recovered; of the other three, one recovered. Since that time I have had seven cases, five in my own, and two in consultation practice. All of these recovered. Two of these cases present points of interest either in history or treatment sufficient to justify a report of them.

CASE I.—Mrs. J. C., aged twenty, primipara, in the eighth month of pregnancy. On the evening of March 26, 1896, she was suddenly seized with severe headache, followed almost immediately by violent convulsions. Thirty minutes later the convulsions following in rapid succession, she was given 1-4 grain of sulphate of morphia, 1-150 grain of sulphate of atropia, with 15 minims of Norwood's tincture of veratrum viride. This dose was repeated in thirty minutes. Patients comatose, but not at all œdemic. Pulse was now about 60, but the convulsions, although decreased in severity and frequency, still continued. One hour later she was given per rectum chloral, 40 grains, kali bromide, 60 grains, and tincture of veratrum viride, 30 minims. From this date until the 30th the patient was watched closely and the treatment continued to the limit of safety, with the result that the coma disappeared, leaving a condition of hebetude, varied by intervals of active delirium. The convulsions varied in number from two to six in twenty-four hours. Free diaphoresis with the hot, wet pack was induced on the 29th, but gave no benefit. Saline and hydrogogue cathartics were tried, but heroic doses failed to produce more than an occasional evacuation. Urine was highly albuminous, varying in quantity from four to eight ounces, and specific gravity from 1005 to 1010 daily. From the inception to March 30, of the attack, the patient had eighteen convulsions. On this date she developed left mydriasis, ptosis and amaurosis with a partial right hemiplegia. Delirium constant and more active.

\*Read before the Fox River Valley Medical Society.

On the 31st, under chloroform anesthesia, the patient was artificially delivered of a living child; time of operation, forty minutes, the os being easily dilatable. The only good results obtained were a disappearance of the hemiplegia and convulsions. The condition of the bowels, kidneys and nervous system remained the same. On April the 20th, the convulsions and hemiplegia and active delirium returned; the urine decreased to less than four ounces daily; specific gravity 1008, by volume, fifty per cent albumin. The muscles of deglutition being involved in the paralytic condition sufficient to almost prevent nourishment or medicine being given by the mouth, colonic flushings of normal salt solutions containing full doses of magnesium sulphate were resorted to, and at intervals rectal alimentation of peptonized milk was tried, but all without changing the aspects of the case in the least. A consultation was had April 22 with Dr. C. W. Oviatt. A careful examination and review of the history and treatment of the case resulted in my decision (with his consent) to try hypodermic injections of chloride of gold and sodium. A dose of 1-10 grain of the combined salts was given morning and evening; saline cathartics and a milk diet were now the exclusive treatment. The first twenty-four hours showed a decided and most surprising improvement. The urine increased to sixteen ounces, with a specific gravity of 1012. The bowels gave several copious fluid evacuations, and from this date the patient made a rapid and uninterrupted recovery.

CASE II.—Also a primipara, aged nineteen, was delivered of a healthy child a few minutes before my arrival. The placenta was removed with ease and the patient's toilet made as usual. In a few minutes she complained of a severe pain in the back, which soon extended to the head, and within less than an hour after delivery she was in the midst of violent post-partum puerperal convulsions, which followed each other in rapid succession until at the end of the fourth she became profoundly comatose and the convulsions ceased after a second hypodermic injection of morphia, 1-4 grain, and atropia, 1-150 grain. Two hours later she received hypodermically 1-10 grain of the combined salts of chloride of gold and sodium; also subcutaneously one quart of a sterilized saline solution containing chloride of sodium, 160 grains; chloride of potassium, 6 grains; carbonate of sodium and sulphate of sodium, each 5 grains; phosphate of sodium, 4 grains;

and sulphate of magnesium, 60 grains. The bladder was emptied by catheter of about six ounces of coffee-colored urine, with a specific gravity of 1010, and by volume twenty-five per cent albumin. The patient was next enveloped from the toes to the chin in blankets wrung from hot water and reinforced by hot water bottles, the head protected by cloths from ice-water, renewed every ten minutes. Five hours later the patient awoke, the hot pack was replaced by dry, warm clothing, the cold applications to the head being continued a few hours longer. The bowels acted several times very freely during the next few hours, and the patient voided naturally fully a quart of urine. The subsequent treatment was saline cathartics, 1-20 grain chloride of gold and sodium by the mouth, three times a day, and a milk diet. All the other cases have been treated in essentially the same way; the pregnant albuminurics showing prompt improvement under the use of the combined salts and requiring no other medication.

Eclampsia has almost come to be a threadbare subject; but no matter how old it may be, or how much may be written on it, so long as its etiology remains so misty and its consequent therapeutics so unsettled, it will retain some interest for the general practitioner.

Rational therapeutics must always depend on definite and conclusive etiology; but here in the absence of such a basis, "the view that eclampsia is the result of a complex irritant poison, which is produced not only by failure of excretion by the kidneys, but also by failure in the action of the liver, the skin, the lungs, and the intestines," affords us at least a rational working theory and is the position taken by most of the leading authorities today and is perfectly consistent whether there be renal disease or not; whether there be œdema or not; whether the case be albuminuric or non-albuminuric; whether the attack occurs in early or late pregnancy, or is post-partum. The position is still further strengthened by the fact, as shown by Dr. Edward P. Davis of Philadelphia, that the lesions, as found post-mortem of a case of eclampsia, are practically those of an irritant poison, as manifested by an "intense pulmonary congestion, dry serous membranes, enlarged, mottled and softened liver, injected and granular kidneys, distended right heart, the hemorrhagic extravasations in stomach, and the areas of infarction and friable condition of blood vessels of the placenta."

Many cases of eclampsia present very impressive, if not convincing pictures, of the results of an irritant poison—a toxemia. Massein, of St. Petersburg, has found that the bodies of pregnant women at the end of pregnancy contain large quantities of toxic substances in the form “of partially oxidized products or leucomains, which are usually excreted by the kidneys or liver.”

Ludwig and Savor, by a series of experimental studies as to the toxicity of eclamptic urine, have arrived at conclusions pointing to retained toxins as the cause of eclampsia.

The clinical picture of a severe case of so-called bilious or sick headache (a lithemic storm), of well developed case of toxemia from fecal impaction, with the attendant faulty elimination and the resulting vertigo, cephalalgia, neuralgia, nausea and vomiting, scanty, high colored urine, disturbances of vision, and often-times melancholia or slight delirium, so very closely parallels the prodromal phenomena of many cases of eclampsia as to fully explain why occasionally some unfortunate physician fails to recognize the patient's danger and treats her for “biliousness” until an explosion of fatal convulsions cause him to lament his lack of care and supervision of his patient. But the etiological relationship between these conditions may be traced still further.

In the August number of the Archives of Pediatrics, B. K. Rachford of Cincinnati, in a very excellent article on “Lithemia,” describes two leucomains, paraxanthin and heteroxanthin, which he has successfully eliminated from the urine of patients suffering from “acute lithemic storms.” These leucomains, when injected into the bodies of mice and guinea pigs, give with more or less uniformity the following group of symptoms:

1. Increased reflex excitability, which gradually increases until convulsive movements begin.
2. Dyspnoea, which continues to death.
3. Contraction of pupils and nystagmus.
4. Spasm of diaphragm, which may result in asphyxia.
5. Spasm of muscles of jaws and frothing in the mouth.
6. General convulsive movements, first tonic, then clonic, sometimes ending in death.
7. Prolonged narcosis when less than a lethal dose is given.

These points give a very accurate picture of a case of eclampsia. These leucomains, according to Rachford, are almost always associated with an excess of lithic acid. The urine of newly born



infants very commonly contains an excess of lithic acid, suggesting the fact that an excess of this substance in the fetal blood current and its usual attendants of paraxanthin and heteroxanthin is a very probable condition. These substances, as well as all other alloxuric bodies, are eliminated by the kidneys, skin and the intestinal tract. When we remember the well known facts, (1) that these maternal excretory organs during pregnancy are called upon to do extra duty under the unfavorable anatomical conditions incident to pregnancy, (2) that the same condition commonly induces an excessive nervous irritability, and then add to these the fact as proven, that these leucomains are active irritant poisons showing their effects on all these organs and producing clinically the same phenomena as those observed in every well-marked case of eclampsia, the natural conclusion is that in these leucomains we have at least two definite factors in etiology.

It is to be regretted that Dr. Davis in his report of post-mortem findings says nothing of brain and cord, and that Dr. Rachford gives us no information as to post-mortem conditions resulting from his experiments. Further investigation along this line may yield us valuable results. Elimination is the therapeutical Alpha and Omega of eclampsia. This applies to all cases, whether the object be prophylactic or curative. For prophylaxis, a milk, or, at least, non-nitrogenous diet, with any of the numerous combinations, cholagogues in tablets or pills at bedtime, with some saline in the morning, with the chloride of gold and sodium, after each meal, will probably answer every purpose. But for the eclamptic stage, of course, more speedy elimination is demanded, and in addition to this (1) the effects of the toxins (convulsions) must be controlled, and (2) the most fruitful source of their production (fetal catabolism) must be cut off as soon as possible. For the control of convulsions we have a large number of drugs from which to choose, but many, if not all, are open to serious objections. Morphia is charged with the danger of deepening the eclamptic coma and its unquestioned tendency to decrease functional activity of the excretory and secretory organs. Veratrum viride, so strongly advocated by many able teachers and practitioners, cannot be continued at length without dangerous depression, and often fails to control the convulsions even when the pulse rate has been reduced to the specified sixty per minute; while, as a diuretic and diaphoretic, it has too often proved a dis-

appointment. Pilocarpin is condemned as being positively dangerous in this stage from its well known liability to induce pulmonary œdema, while chloroform is not without its critics in this respect. Chloral cannot be continued long, nor is it free from depressing effects. These are among the most commonly used drugs for the control of convulsions, of which morphia or chloroform used tentatively is probably the most useful and the safest. But none of these possess any merit as eliminants, while the effort at elimination by means of the ordinary hydragogue cathartics and the stimulant or refrigerant diuretics, is too often a futile one, owing to lack of time or the coma of the patient which prevents their use entirely. We have, however, in the use subcutaneously of artificial serum, reinforced by suitable quantities of magnesium sulphate, a therapeutic agent of probably the greatest value of any at the present time. Although its use is objected to by some authorities, where doubt exists as to the integrity of renal structures, its adaptability to such a wide variety of cases, its speedy and prompt results, both as a cathartic and diuretic, together with the ease and safety of its use, more than counterbalance the objection. The use of the chloride of gold and sodium is not open to even this objection and has long been known for its benefits, as a tonic, eliminant and diuretic, and a standard remedy in chronic renal disease.

The widest difference of opinion exists as to the question of emptying the uterus. But while each case must be treated on its own merits, Charpentier of France, after an exhaustive study of more than five hundred cases comes to the following conclusions:

1. That labor should be waited for and terminated naturally whenever possible.
2. That induced labor should be resorted to only in exceptional cases in which medical treatment has failed.
3. And this even is to be delayed until the cervix is dilated or dilatable, and that Cæsarean section, manual dilatation of the cervix, especially deep incisions, are absolutely unjustifiable. These teachings are endorsed by Winckel, of Germany, but J. Clifton Edgar, of New York, believes that those who follow these teachings will see many cases lost, which might have been saved by more prompt and intelligent measures. He also, with Edward D. Davis, of Philadelphia, considers eclampsia to be largely a pre-

ventable disease. If this be true, then every case of puerperal eclampsia must be made an object lesson to the community in which it occurs, to impress upon the minds of pregnant women the necessity of placing themselves under careful and intelligent medical supervision.

Omro, Wis.

## SOCIETY REPORTS.

### AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

#### SOME OF THE COMPLICATIONS FOLLOWING VAGINAL HYSTERO-SALPINGO-OOPHORECTOMY IN PELVIC SUPPURATION, WITH REMARKS ON THE OBJECTIONS TO THIS OPERATION.\*

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A perusal of the literature of the past few years proves that vaginal hysterectomy has made its way here and abroad. Its condemnation upon theoretical grounds has decidedly diminished. Its advantages are too plain to permit of being longer ignored. Men who in the beginning strongly opposed this "mutilating operation," as some are fond of styling it, have changed their opinions. Guided by the experience of others they have adopted this method and confirmed the assertions of its advocates that it is a conservative operation in the broadest sense of the word, a procedure, which, though sacrificing the uterus, conserves the life of the patient even under circumstances where the suprapubic route would mean certain death.

The propriety of removing the uterus in suppurative disease of the appendages has been questioned ever since Péan intro-

\*Abstract of paper read before the American Association of Obstetricians and Gynecologists at Pittsburg, Pa., September 20-22, 1898.

duced vaginal hysterectomy. Briefly stated the chief objections are:

1st.—The uterus is not a useless organ after the ablation of the appendages and should not be sacrificed unless seriously diseased.

2nd.—Vaginal hysterectomy is an incomplete procedure, followed by serious complications and is not curative.

The discussion of the justifiability of removing the not seriously diseased uterus antedates the introduction of vaginal hysterectomy for pelvic suppuration. Commencing in 1876, when Porro introduced the operation bearing his name, the battle pro and con has been kept before the profession until the present day, has at times been quite animated and has not always been conducted within the limits of parliamentary courtesy. It is only within the past few years that the Porro, or rather the modified Porro operation has come more into favor, and it is to be hoped that in the near future its indications may be extended to that unfortunate class of pregnant women, whose pelves render the delivery through the vagina impossible. This position, at present assumed only by a small number of progressive men, is certainly in accordance with the spirit of science and humanity.

New life was brought into these discussions by Schroeder in recommending the supravaginal amputation of the cervix for cancer of the cervix uteri. The argument of Schroeder and his followers that it is unnecessary to sacrifice the entire uterus when the disease is limited to the cervix, was regarded as inconclusive. Strange to say, men objected to this conservative plan of treatment, who at the same time condemned the Porro operation as too radical a procedure. Notwithstanding the fact that the statistics of the supravaginal amputation of the cervix, as published in 1886 by Hofmeier,\* then Schroeder's first assistant, compare well with those of hysterectomy, the former operation fell into desuetude and today is only a matter of historic interest.

Although it appears that the limits have long since been transgressed, it is impossible at the present day to say how far the principle of conservatism will be carried. In this era of conservative surgery, it is refreshing and inspiring to meet with an article whose author, fearless of criticism, steps beyond the trodden path and resorts to and advocates a radical procedure in order to save life. I refer to the article of an illustrious fellow of this

\*"Zeitschrift für Geburtshilfe und Gynäkologie, vol. XIII, p. 360."

Association, Dr. Rufus B. Hall,\* published last January. This writer recommends hysterectomy as a preliminary step in all cases of intraligamentous cysts, where the tumor is firmly adherent to the pelvic floor and cannot be easily detached. By cutting off the blood supply before enucleating the tumor the danger of hæmorrhage is removed. This method of dealing with a certain class of intraligamentous cysts, no doubt, is a valuable improvement of our technique and should as such be appreciated, yet I venture to say that, like vaginal hysterectomy in pus cases, it will meet with the objections of those who insist on the application of the surgical rule not to sacrifice an organ which is not seriously diseased.

The disposition to preserve the uterus during the child-bearing age in women with healthy tubes and ovaries, or in unilateral suppurative pelvic disease can well be understood, but why this organ should not be removed as the initial step of a life saving operation when the ablation of both appendages becomes a necessity is beyond comprehension. The assertion that the uterus without the appendages is still an important organ, that its functions have not ceased with the artificial induction of the menopause, must be rejected as untenable in the light of our present knowledge. The arguments that after the extirpation of the uterus the nervous phenomena are more pronounced than when the appendages alone are removed, that the sexual appetite is lost and the sexual relations are disturbed, have strongly influenced many surgeons against vaginal hysterectomy. Careful investigations however have shown that these arguments cannot be verified. Mainzer,† in his report of 200 vaginal hysterectomies for chronic inflammation of the adnexa, performed in Landau's clinic, arrives at the conclusion that there is less disturbance of the nervous system after the radical operation than after salpingo-oöphorectomy alone. He further states that the age of the patient bears no relation to the presence or absence of these nervous symptoms. This difference of opinion can probably be explained by the difference in the nervous system of the patients. From my own experience, I cannot confirm the view that the removal of the uterus increases the nervous disturbances incidental to the menopause, and I am inclined to believe that this view is based upon the complaints of neurotic women.

\*"American Gynecological and Obstetrical Journal, 1898."

†"American Journal of Obstetrics, vol. XXXVII, p. 693."

With reference to the sexual passion, my patients, with but one exception, state that they have as much sexual appetite now, as at any time before operation.

It is universally admitted that the mortality of vaginal hysterectomy is considerably less than that of the abdominal operation. On this most important point all are agreed, and every surgeon whose first object in operating is the saving of life, must feel kindly towards this operation. There is diversity of opinion, however, as to the ultimate results of the vaginal procedure. Notwithstanding the favorable reports coming from all sides, some operators persistently claim that vaginal hysterectomy is followed by serious sequelae and does not cure the patient.

Before discussing this question, I may be permitted to say that I am totally opposed to vaginal hysterectomy in those cases in which there is a possibility of saving one tube and ovary, *i. e.*, in cases of unilateral suppuration even when due to gonorrhœa. I am not as yet convinced that both appendages must be sacrificed—far less the uterus—when the gonorrhœal infection is limited to one tube and ovary. I know that gonococci have been found in the uterus, while the pus in the tubes and ovaries contained no bacteria. Broese\* quite recently reported such a case. The gonococci in the tubes and in an ovarian abscess had perished while they were still present and virulent in the uterus and in the urethra. Experience teaches that in a number of these patients, after the removal of one of the adnexa, the gonococci invade the other side requiring a secondary operation, but many of them remain well and this is probably due to curettement and other appropriate treatment of the uterus and vagina. The source of the second infection after such treatment is by no means clear. It may be that we did not succeed in destroying the gonococci in the uterine cavity, but the possibility remains that such patient has become the victim of a new infection, that she has contracted gonorrhœa the second time. As the risk of a secondary operation, if done *per vaginam*, is but slight, the conservative plan of treatment, the removal of the diseased tube and ovary by means of an abdominal section, is certainly preferable, especially in young women.

My personal experience with vaginal hysterectomy for pelvic

\*"Zeitschrift für Geburtshilfe und Gynäkologie, vol. XXXVIII, p. 539."

suppuration is limited to 42 cases operated upon during the years 1895 to September, 1898. This series, though small in number, will be found quite interesting on account of the extent and the gravity of the pathological changes. Of the forty-two patients, eighteen belonged to that desperate class of cases which, if treated by the abdominal route are either left unfinished or, according to the statements of prominent operators, have a death-rate of twenty-five to thirty per cent, not in the hands of beginners, but of the most skillful surgeons. The pelvic organs were agglutinated into one mass and could not be distinguished by vaginal or rectal examination. In some instances these masses reached half way to the umbilicus, while in others the peritoneal cavity was less involved and they extended downward into the vagina, pushing the uterus against the symphysis pubis and compressing the rectum to such an extent that an ordinary rectal tube could not be passed without difficulty. The lesions of the remaining twenty-four patients were not quite so extensive, yet in every instance both appendages were so far involved that a conservative operation seemed to be out of question.

The vast majority of the patients belonged to that class of women who have to work to earn a living. With but few exceptions, they had passed through many attacks of pelvic peritonitis and were invalids for years. A number of them had come from the medical ward, where they had been sent as typhoid fever and appendicitis cases. About half a dozen were prostitutes. Three stated that they had discharged pus by the rectum several years ago. Four had previously been treated by vaginal incision and drainage, two by different surgeons, two by myself. Complications occurred in the following three cases:

CASE I.—Mrs. H. S., aged 28 years, married, mother of five children. Pelvic peritonitis due to gonorrhœal infection. Pelvis filled with masses. Vaginal hysterio-salpingo-oöphorectomy, October 2, 1895, multiple clamp method. The patient made a prompt and uncomplicated recovery and was permitted to leave the bed on the 12th day after operation. Two days later she complained of sore throat, and in the morning of the following day of stiffness of the neck and difficulty of deglutition. As the day progressed these symptoms increased in severity, and with the appearance of trismus and opisthotonos it became evident that the patient was suffering from tetanus. The first convulsive attacks

occurred late in the afternoon and confirmed the diagnosis. The patient died October 19, seventeen days after operation. Temperature at death 108.6°.

At the time when this sad accident occurred I was at a loss to explain to my satisfaction the source of the infection. I believed that the bacilli had entered the system through slight abrasions at the vaginal opening due to pressure of the clamps. As soon as the diagnosis was established, these abrasions, which were almost healed and did not look suspicious, were thoroughly disinfected with a concentrated bichloride solution. Immediately after the death of the patient I excised some of this excoriated tissue, and tetanus bacilli were found in great abundance. While the presence of the bacilli in the vagina was thus demonstrated their origin could not be traced.

It is my rule to remove the gauze, which at the operation is introduced into the abdominal cavity to cover the clamps and to prevent injury to the bowel, on the 4th day. The cavity is then flushed with a sterilized creolin solution and a piece of iodoform gauze reintroduced. This dressing is changed daily until the eighth day, when I leave the gauze out. A vaginal creolin douche made with filtered water is then given by the nurse once a day until the patient is discharged.

Although we never succeeded in finding tetanus bacilli in the filtered water, which was examined at various times, I looked upon it in the absence of other evidence, as the probable carrier of the infection. This view is supported by the investigations of F. B. Hancock and J. C. Hirst,\* who in 1897 reported five cases of puerperal tetanus.

CASE II.—Mrs. A. S., aged 38 years, mother of two children, invalid for years. Masses on both sides of the uterus, which was large, retroverted and adherent to bowel and omentum.

Vaginal hysterio-salpingo-oöphorectomy, October 4, 1897. Patient did well the first two days' after operation. There was but little vomiting after the ether. On the third day the pulse rate increased to 140. She had severe cramps, was nauseated, and began to vomit. The abdomen was slightly tympanitic, peristalsis increased. Attempts to move the bowels by cathartics and enemata were not successful, only very little gas was expelled by the rectum. The following day she seemed more comfortable,

\*"University Medical Magazine, vol. IX, p. 750."



vomiting had ceased and she was able to retain nourishment. Her general condition, however, did not improve. The abdomen became more distended and though the pulse rate went down to 120, it looked like a case of intestinal obstruction. Examination per vaginam was negative, the bowel was not adherent to the vaginal incision. Large doses of epsom salt and a number of enemata produced one slight and two copious bowel movements in the afternoon of the fifth day. The pulse rate came down to 104, while the temperature remained around 98°. The patient, though weak, was in good spirits and celiotomy, for which preparations had been made, was postponed. The following morning she was profoundly collapsed and died at two o'clock P. M., six days after the operation. Autopsy showed that two coils of the ileum, about four inches above the ileo-cecal valve, had become adherent, forming a loop and producing a flexure of the intestine. Neither bowel nor omentum was adherent to the vaginal incision.

This case demonstrates the difficulty of an early definite diagnosis of intestinal obstruction. It is worthy of record that fecal vomiting did not occur in this case. The obstruction was not complete, at least not on the fifth day, when three bowel movements were obtained. This action of the bowels was the deceptive feature which led me to delay surgical interference. As records show, ileus following vaginal hysterectomy is fortunately a rather rare complication.

CASE III.—Mrs. F. R., aged 38 years, married, mother of one child, two abortions. Patient was received from the medical ward October 12, 1897, with a temperature of 104°. It was a deperate case of gonorrhoeal infection, with the pelvic organs agglutinated into one mass, illustrating the seriousness of delay after palliative treatment has been found inadequate to effect a cure.

Vaginal hysterio-salpingo-oöphorectomy, October 19, 1897. The operation was very difficult. The patient reacted well under the use of stimulants, but remained weak and made a slow recovery the first ten days. From November the first, the 12th day after operation, she improved rapidly until November 17th, when preparing to leave the hospital, she complained of weakness and took to her bed again. On the following day her temperature began to rise and remained high until November 29, ranging

between 101° and 103°. From this day on, recovery was uninterrupted.

The cause of the fever could not be determined. At first I thought that too early closure of the vaginal incision had interfered with drainage and that retained septic material was responsible for the elevation of temperature. Repeated vaginal examinations, however, showed the pelvis to be in good condition. The abdomen was soft and not distended, and the bowels responded promptly to cathartics. Examination of heart, lungs and kidneys gave negative results. The vaginal creolin douches which had been given this patient were made with distilled water.

Several months later, I observed the same symptoms in a patient upon whom I had performed plastic operations. She had been perfectly well until the third week after operation, when her temperature began to rise. This led to further investigations, which showed that the distilled water used in the preparation of the creolin douches contained two varieties of staphylococci, the *staphylococcus aureus* and *albus*. The same organisms were found to be present in the air around the tank, from which the distilled water was drawn. As Mrs. R. made the impression of a septic patient, I believe her condition to be due to staphylococcus infection and I regard the distilled water as the infecting medium.

I do not want you to think that the distilled water was handled in a careless manner. When douches are prepared, it is drawn from a large tank, which by means of pipes is connected with the distilling apparatus. This tank is sterilized before every operation, by boiling it in several gallons of the distilled water, which is then permitted to flow out and is not used. The faucet is cleansed with 10 per cent carbolised water and sterilized gauze wrapped around it. The fact that the samples, which were proven to contain the staphylococci, were drawn directly from the tank into sterilized flasks makes it evident that infection took place within the faucet.

With the exception of these three cases, I have not met with any complications. The absence of the serious post-operative sequelæ, which follow the abdominal procedure in similar conditions, is the most striking feature in the subsequent history of the cases and a great comfort to both the patient and the operator.

I have followed up my patients and have thus been able to examine most of them. In every instance, the pelvis was found to be in a satisfactory condition. No complaints worthy of note were made. These women are practically well able to work and to enjoy life.

In conclusion, I desire to express my thanks to Dr. R. G. Burns, bacteriologist to the Bureau of Health of Allegheny, and Dr. J. Wolf, bacteriologist to the Allegheny General Hospital, for the numerous bacteriological examinations made in the reported cases.

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DISCUSSION.

DR. JOSEPH PRICE, of Philadelphia, said that Dr. Blume had given a most interesting presentation of the subject. Too many members were thinking about their suprapubic results, and many were attached to and grounded in that route.

With reference to the condition of the sexual organs following operative procedures, Dr. Price said that in a series of seven Porro operations nearly all, if not all, were sterile because pathological conditions existed unfavorable to conception. In two or three instances the women had been married ten or eleven years, and while he did not look into the sexual history of these women, there were no complaints made regarding this point since the Porro operation. These women lived with their husbands, were happy, thrifty and rosy. In those cases in which he inquired into their sexual lives, he had always been informed that operative interference improved the sexual appetite. After supra-vaginal hysterectomies it is the rarest thing for women to complain after the operation with regard to their sexual function. In discussing the nervous phenomena incident to a normal or precipitate menopause, age must be considered. Take the so-called neurasthenic woman who has been six months or a year in a rest-cure establishment or sanitarium, or has spent a winter in France or Los Angeles, and we have a woman in whom the appendages are fixed; we have an old occlusion with retention of pus or water; the woman probably had a miscarriage ten or twelve years ago, and we have a patient in whom nervous phenomena are well marked. Operations near the normal menopause are thrice less marked than

in that group of cases. A great many operators are doing unfinished and incomplete work by the vaginal route. The vaginal route favored bowel obstruction.

DR. EDWIN RICKETTS, of Cincinnati, said he knew of no diagnosis that covered so large a field as pus in the pelvis. It may mean an ovarian abscess; it may mean an abscess in one or both broad ligaments; it may mean pus in the wall of the uterus which is extra-peritoneal, and yet it all comes under the diagnosis of pus in the pelvis. It is the differentiation that he wants to dwell upon more especially. In a recent case that came under his observation, it being the seventh case of infection he had seen following delivery by a midwife, there was distention of the bowels. Peritonitis was present, and upon vaginal examination, on the right side of the uterus a mass was felt. It was difficult to make a diagnosis in this case or to differentiate as to whether the pus was extra-peritoneal, whether it was in the wall of the uterus, whether it was a pus tube, or an abscess that was making its appearance above the iliac crest. Being satisfied that the abdomen had to be opened, the combined method was used. The abdomen was opened, and the uterus being found patulous, the right index finger was thrust into the dilatation and two ounces of pus taken out of the uterus, and nearly a pint of fluid was found in the abdominal cavity. The uterus was pulled up, and with the index finger the peritoneal covering was penetrated near the abdominal cavity by thrusting the finger through the uterus in that way. The tubes and ovaries were found all right. The uterus was packed, and a satisfactory recovery followed. The abdominal cavity was drained. In spite of the best efforts, stitch-hole abscesses occurred in every puncture of the needle. This was one of the points he wished to particularly dwell upon, namely, the infective character of the peritonitis in this case.

He advocates the vaginal route in all cases of pus in the pelvis, it makes no difference where the pus may be. He has a case under his observation now, the sixth week following delivery, in which the temperature of the patient arose to  $105.5^{\circ}$ , then coming down to  $99^{\circ}$  and  $99.5^{\circ}$ . Under two examinations under chloroform he has been able to locate the pus and evacuate it, and the woman is making good progress. In the case referred to in which the pus was in the wall of the uterus, he is quite sure that some of the advocates of vaginal hysterectomy would have resorted

to that operation, reached the pus, and claim it was a victory for the vaginal route. This patient has the uterus, ovaries and tubes intact, and he expects in time to deliver her again. Those who advocate the vaginal route altogether do not have the advantages of doing complete work like those surgeons who operate suprapubically.

DR. RUFUS B. HALL, of Cincinnati, commended the essayist on his very concise and interesting paper. While gynecologists might not agree as to how to attack pus in the pelvis, nevertheless he believes the paper is one of great value. He is not willing to assert as yet that he will attack all of these cases through the vaginal route that have pus, where the gynecologist must sacrifice both sides, but he is willing to admit that there are cases coming under observation where he believes vaginal section and drainage is a life-saving operation, and personally he is inclined to limit the operative procedure to those few cases. The essayist cited one or two cases that were transferred to the medical ward with a temperature of  $105^{\circ}$ ; they were treated for a week or more as cases of typhoid fever. Before entering the hospital these patients were undoubtedly septic and had large accumulations of pus. These patients, in the opinion of Dr. Hall, might have recovered from vaginal section with drainage, simply resorting to a life-saving operation. Perhaps it would not be necessary to do a hysterectomy, but simply let out the pus, and permit the women to recover from the septic condition, then resorting to a radical operation when they were not septic. He is inclined to do hysterectomy in pus cases, and if he resorts to a vaginal operation he considers it simply a temporary procedure, for the reasons advocated by the previous speakers. There were a number of cases in which the adhesions to the viscera were so extensive that good and complete work could not be done through the vagina. He cannot remove an appendix for appendicitis, or suppurating ovaries, and do as nice an operation vaginally as he could if he opened the abdomen. He agrees with the essayist in one particular, namely, taking the cases as they come, one with another, that after hysterectomy a patient suffers less from reflex disturbances if the uterus is left, especially if the woman be young. If she is under thirty-five, and the uterus is removed, if an abdominal operation is done, and the uterus taken out and the cervix left, the

patient suffers less from reflex troubles than she does if the uterus be left. This is his personal experience.

DR. CHARLES GREENE CUMSTON, of Boston, stated that suppurative conditions within the pelvis demanded different treatment, according to their situation, the number of foci present, the size and nature of these foci, and in making a diagnosis all of these pathological conditions must be considered in taking into account the choice of operation, whether the case be attacked through the vagina, or the abdominal wall. He agrees with Dr. Blume, that if it is necessary to do a vaginal hysterectomy, it should be complete. If the tubes are full of pus, with a suppurating uterus, or with evidences of infection of the tubes and ovaries, then removal of the uterus is justifiable. The uterus must necessarily be infected in such instances, as was verified by microscopic sections of all cases he had seen. If the ovaries and tubes be removed and the infected uterus left *in situ*, the patient will have trouble with the uterus later on. In most cases of pus in the pelvis, speaking in a broad way, he thinks posterior colpotomy, or incision of Douglas's pouch, is a very trifling and conservative operation. It can be performed in chronic purulent conditions of the female pelvic organs, and also in acute suppurative conditions, where it would be dangerous to do either abdominal or vaginal hysterectomy. Great care must be exercised, when working in the vagina, to render the canal aseptic, because he believes a great deal of trouble afterwards occurs from improperly cleansing the vagina, and on this point he would insist upon very carefully preparing the vagina. He has performed posterior vaginal section, and in this connection he wishes to say, never puncture with a trocar, but always with the knife, making a clean incision, opening the posterior cul-de-sac with the fingers and emptying the pus. He has done this successfully in gonorrhœal pelvic peritonitis, and in one or two cases of abscess of the broad ligament. These patients had done well, requiring no further operative interference, unless they had passed into other men's hands, and he knows of no recurrences.

DR. JAMES F. W. ROSS, of Toronto, said that last year he attended the meeting of the British Medical Association, held in Montreal, and was asked to take part in a discussion on the vaginal *versus* the abdominal route. For some time it puzzled him to find out why it was the vaginal route suddenly took such a hold

upon the profession, and became so popular. It was a mystery to him. In the discussion, he ascertained that there were certain hospitals in which there were gynecologists or gynecic surgeons, if they may be so termed, and they had the peculiar rule that when the abdomen of a patient had to be opened, the general surgeon of the hospital did, but when it became necessary to operate by the vagina the gynecologist did the operation. And this was the origination of bringing the vaginal route into favor.

There was one feature in connection with the discussion of this subject which should be mentioned. In speaking with Dr. Mann the other day, the use of the silk ligature was referred to in the operation from above. Dr. Mann said to him that one woman with a buried infected ligature was enough to frighten a man from using silk the rest of his life. He (Mann) instanced the case of a lady who had been operated on three or four times for the purpose of removing an infected ligature. He believes before long surgeons will cease using silk in the abdomen and instead use catgut, thus avoiding the danger of the formation of sinuses that arise from the use of the silk ligature. If possible, catgut should be used in these cases in preference to silk.

At this meeting of the British Medical Association the question of vaginal hysterectomy for cancer was discussed, and the experience of Dr. Ross coincides with that of Dr. Price, namely, that vaginal hysterectomy for cancer, no matter how early it is done, is not a satisfactory operation. Cases are reported in medical journals of patients who have lived for four or five years, but this was not borne out by his experience. He has done vaginal hysterectomy for malignant disease of the fundus where there was no evidence of infection outside, and in two cases the patients returned with a recurrence of the disease at the end of twelve months. The curette and cautery, or high amputation of the cervix after the method of Byrne was satisfactory in his hands. Patients lived just as long after this less dangerous operation as they did after vaginal hysterectomy.

DR. L. H. DUNNING, of Indianapolis, said he had enjoyed the discussion very much, believing that it would bring the Fellows closer together in their beliefs and methods of practice. He wished to speak of only one or two points. The first in regard to the character of the suppurative products encountered and which called for different lines of procedure. In those cases described

by the essayist, in which he found the pus accumulations exceedingly large, extending as high as the umbilicus, fixed, and extending down into the vagina, it has been his practice for ten years, and he sees no reason to change it, to resort to vaginal section in such cases. Where a vaginal hysterectomy was done in these cases it was an impossibility in the majority of instances to remove the pus sac. He has tried it many times and has been compelled to abandon it. Furthermore, operations upon cases of the kind under discussion by the abdominal route were attended with a mortality of from eighteen to twenty-five per cent. Doubtless the mortality statistics of Dr. Price were much lower than that. He has operated on fifty cases similar to those narrated by the essayist by vaginal incision. He has had four of that number return for subsequent operation. All but one of them have made primary recoveries. He would be glad to resort to any procedure which would yield better results, but he has not been able to find any other means that would accomplish as much. In two cases abdominal section was done, and a chronic abscess enucleated from above. In two other cases subsequent punctures were required, but a cure was effected under careful treatment. One of the objections to vaginal hysterectomy in pus cases was that these patients were liable to infect other cases. In his city he is compelled to keep two rooms set aside for the purpose of subsequently treating cases of vaginal hysterectomy. These patients cannot be taken to the general ward, for if they were, they would surely infect other patients. Stitch-hole abscesses appeared, and it was a matter of impossibility to avoid them. This is one of the serious drawbacks to the method and would always remain so. Another drawback against the vaginal route was the subsequent development of abscesses, one or two, or possibly four months after primary operation. He will not do a vaginal or supra-vaginal hysterectomy upon any woman under thirty years of age, unless he is compelled to do so to save life, and he set forth his reasons therefor.

DR. B. SHERWOOD-DUNN, of Boston, said that the remarks made by Dr. Dunning as to the septic condition of patients after a vaginal hysterectomy was one of the gravest objections to this operation. If the mortality rates of surgery are more largely dependent upon aseptic conditions than upon any other one factor, then it is certainly necessary to exclude from hospitals septic cases



that endanger the inmates with septic infection. At the Chicago meeting of this Association he was a pronounced advocate of vaginal hysterectomy, having then just returned from France, where it had arrived at its most excellent degree of perfection, and where it was practiced by the masters of that particular operation, and had shown a mortality rate that has never been equalled by any other operation. But in the hands of surgeons at home, the consensus of opinion is (and he adds his own testimony), that the perfection of technique of hysterectomy by the vagina exceeds in difficulty that by the abdomen to a great degree. The complications that follow this operation surpass to a great degree those by the abdominal route. The danger to the ureters, the bowel, the danger of post-operative hemorrhage, are all very much greater by the vagina than they are by the abdominal route. Since he has had the advantage of three years' experience at home, and has seen the wonderful results of abdominal surgery in his native land, he has practically abandoned vaginal hysterectomy, relegating it to a few selected cases, where he is fearful of the death of his patient by a suprapubic operation. Then, furthermore, he looks upon the vaginal operation as a tentative procedure. It was a difficult operation to make complete, and in many instances it is followed by a second operation through the abdominal wall.

In one respect to the treatment of pus in the pelvis by the abdominal route, the Association has to consider that the consultation practice and unusual opportunities of such men as Dr. Price and Dr. Ross permits them to undertake and successfully treat important and dangerous cases—cases which the majority of us would not attack with the same fortitude or the same courage. He therefore thinks it is practicable to attempt palliative and tentative methods on the part of those who are less experienced, and who may resort to vaginal incision and evacuation of pus, or do other operations of a kindred character, saving the lives of their patient. There is one point he thinks that has been generally overlooked by operators in America with respect to vaginal hysterectomy, and that is, that the after-treatment of the patients is fully as important, as regards their ultimate recovery and favorable results, as is the technique of the operation itself. Professor Ségond, returning to France after a visit to this country, wrote a paper which was read before the Surgical Society of Paris, published in the *Revue de Gynecologie*, and translated into many lan-

guages, entitled "Abdominal Hysterectomy for Large Fibroids and the Superiority of the American Method Over All Others." Jacobs came to this country on a missionary tour to convert American surgeons to vaginal hysterectomy. He returned to Brussels a convert to the suprapubic operation, and recently told Dr. Lapthorne Smith in his clinic that he considered it the operation of choice for total extirpation of the uterus and its appendages; the speaker thus felt himself in good company in his change of opinion as to the field of usefulness of vaginal hysterectomy.

DR. W. E. B. DAVIS, of Birmingham, Alabama, was of the opinion that it is necessary in many cases to operate suprapubically. This point had been thoroughly settled, as radical surgery could be accomplished by this method. He believes, however, that vaginal incision and drainage has a large field. There is a great deal of difference between operating upon old gonorrhœal cases and upon fresh ones. Unquestionably all of the cases following the puerperal state, where the surgeon can place his finger upon a well-defined mass behind the uterus, can be dealt with better by the vaginal route. He cares not how skillful the surgeon may be, he thinks he makes a mistake when he operates suprapubically, when vaginal incision and drainage, a simple procedure, and packing with gauze, will bring about good results. It must be remembered that a few of the cases will come back for subsequent operation, but gynecologists should be willing to give young women several operations, if necessary, to save important organs. The sexual organs meant more to them than a second or third operation. It is different in dealing surgically with women near the menopause.

DR. CHARLES A. L. REED, of Cincinnati, said he had given some thought to the alternate route in operations for suppurative conditions within the pelvis, and he has had some experience that has not been without its value—at least to himself. When these innovations come from the hands of respectable and serious operators, with the results that seem to justify their serious consideration, he feels it is the duty of the Association to put them to the test of practical experience, and that has been his method with regard to the vaginal operation for pus in the pelvis. He has endeavored to deal with these cases by that route as carefully and as conscientiously as possible, and he has since been resorting to the

abdominal method. His remarks at once imply that he has abandoned the vaginal route and has returned to the principle of operation by abdominal incision. He has done so for the reasons that have been recounted in the discussion with such clearness and precision. Operations by the vagina are generally incomplete. There are complications that exist in the cases under discussion that cannot be brought under control from above, and it is unnecessary to reiterate them. But he has found a class of cases in which he believes hysterectomy is a very important concomitant in the course of treatment. He does not attach very much importance to the physical value of the uterus as the keystone of an imaginary arch. The tissues are too flexible; there is too much elasticity to compare the pelvic diaphragm with an arch that sustains a bridge. There are cases in which he removes the uterus, but he does not do so *per vaginam*. There are cases of manifestly infected uteri—those cases where the uterus is soft and flabby—in which there is more or less recent acute infection, parametric in character; there is more or less engorgement, and in those cases he applies the volsellum forceps, lifts up the uterus, puts a couple of ligatures on either side, takes it out, stitches the peritoneum over, and gets rid of a dangerous element. In most cases he does abdominal hysterectomy. He does not consider it a difficult procedure.

DR. A. B. MILLER, of Syracuse, New York, said it was difficult in many instances to determine the amount of pus present in the pelvis, whether it was a small or large amount in the upper portion. It was difficult to define even by digital examination. He spoke of a condition described in Thomas's work as "pelvic cellulitis," where the whole pelvis is filled with a mass. The point he desires to make is that in such cases it is impossible by any means of diagnosis, by palpation or conjoined manipulation, to locate the position of the uterus, and if an incision was made in the posterior cul-de-sac, it is possible that instead of the uterus being above the symphysis pubis, it might be differently situated, and the point of the scissors might be thrust by the surgeon into the uterine pouch. (Dr. Miller's remarks were accompanied with diagrammatic sketches.)

DR. J. HENRY CARSTENS, of Detroit, asked Dr. Price if he ever came across a case of pus tubes where he thought it was advisable to remove the uterus by the vagina.

DR. PRICE replied that in a case of diseased ovaries with vicious, suppurating tubes, and where he could dismiss complications of every character above the uterus and the appendages, the vaginal operation was the operation above all others, and he would not hesitate to do it.

DR. BLUME, in closing the discussion, said, in reference to the remarks of Dr. Davis, that he has had no experience in making a posterior vaginal incision and evacuating pus. He had resorted to incision and drainage in two cases of large abscesses, evacuating their contents, and one woman was so tired after three weeks' treatment that she refused to be put on the operating table. If such tubes are incised and drained, he believes they will never functionate again.

#### NOTICE.

THE 3d International Congress for Gynecology and Obstetrics will take place at Amsterdam from the 8th to the 12th of August, 1899, under the patronage of the Minister of the Interior.

The leading questions for discussion will be the following:

1. The surgical treatment of fibro-myoma.
2. The relative value of antiseptics and improved technic for the actual results in Gynæcological Surgery.
3. The influence of posture on the form and dimensions of the pelvis.
4. The indication for Cæsarean section compared to that for symphyseotomy, craniotomy and premature induction of labor.

The reporters are Drs. Doyen, Howard Kelley and Schauta, who will treat the first question; Drs. Bumm, Richelot and Lawson Tait the second; Drs. Bonnaire, Pinzani and Walcher the third, and Drs. Leopold, Pinard, Pestalozza and Fancourt Barnes the fourth.

## EDITORIAL.

PURULENT INFECTION OF THE INTEGUMENTS, (*Impetigo Herpetiform of Hebra*), is a disease not only of interest to the dermatologist but to the obstetrician as well, because it is often observed in pregnant women. It has also been met with as a complication of long-standing suppurative processes in the neck and in infectious suppurating endometritis, consequently it is a purulent infection whose principal characteristic is that it is limited to the integuments.

Clinically it is characterized by multiple and superficial suppurative foci, which invade large areas of the integument and recurs incessantly in successive attacks accompanied by fever, which is sometimes quite intense.

The lesions are always subepidermic and superficial. In the first place there is a slight swelling of the epidermis, the size of a pin head, due to a thick exudate, but there is no apparent projection above the level of the skin. It is surrounded by an erythematous areola, and the lesion may remain miliary and form rounded or linear figures.

Usually the elements multiply eccentrically at the same time that scabs form over their central part. After the scabs fall off a red, varnished surface, which is occasionally squamous, is to be seen. The elements often become confluent in the form of lenticular elevations or in curved figures of various shapes.

The suppurative curved figures take on most singular shapes in the area of the patches which are preceded by the erythematous areola, and represent the letters S, C, J, or G of the alphabet, or certain numbers, such as 3. Occasionally figures in the form of two interrogation points placed back to back are seen, or they may form crescents, spirals or perfect circles. These figures are the result of the extension in certain directions of the miliary exudate.

On the limbs the lesions follow an ascending progression, representing a pair of stockings or gloves, in shape; the nails fall out and large blisters arise on the plantar aspect of the foot. Around the knees blisters of a peculiar look are to be met with and are composed of a fine folding of the epidermis, due to parallel swellings, similar to wrinkles obtained by moistening a cigarette paper. The mucous membrane of the mouth and digestive tract may also become involved by the process, and in these regions it may be

come vegetating in type. If preceded by febrile attacks, it lasts several months and in most instances terminates fatally.

As yet we do not know if the disease is due to the presence of a modified staphylococcus, a pyogenic organism still to be discovered, but which is probably aerobic, or to toxins produced in deep or superficial suppurative foci. Purulent infection of the integuments is distinctly different from ordinary purulent infection, because there are no infarctus in the viscera; and on the other hand, its exclusive localization in the integuments, its duration which is sometimes quite long, and the possibility of recovery of the patient render it a distinct pathologic process.

With the development of preventive medicine, there has naturally come an increasing emphasis upon the necessity of pure foods, drugs and the preparations of them.

Yet important as this is, few States have really active agents investigating these matters and fewer still by their laws and courts support the agents which they do have.

Perhaps this lack of efficiency is dependent more directly upon this lack of support than upon any other cause. Ohio is an example of a State which has energetic officials and gives them cordial support. The last report of the Ohio Dairy and Food Commissioner is just at hand and furnishes much interesting reading. Two hundred and thirty-eight prosecutions were brought. Only eight of these were acquitted. Surely that is energy and support!

A brief consideration of these cases or some classes of them will be of interest to physicians everywhere. Detailed reports can be secured from the Commissioner at Columbus, Ohio.

Oleomargarine is one of the most abundant causes of law breaking. Not that injurious materials are added, but because it is colored so as to resemble butter and sold for that. It seems a pity that some law can not be devised which shall permit the sale of this "poor man's butter" in as attractive form as it can be made. No attempt is made to deny that it is a valuable food, and a pure product can be produced at almost half the expense of butter. Looking at it from a medical and hygienic point of view, the laws which regulate the sale of "oleo" are not fair, but are framed chiefly in the interest of the dairy farmers. Many and many a poorly nourished child is so because of the failure to supply available fat in his food. The effect when these children are attacked

by disease is well known to us all. As physicians let us agitate this more. We have influence with our legislative representatives. Let us use it. The boards of health agree with us, but are out-voted every time by the granger element.

Another food (?) product which was found frequently adulterated was whiskey. Now whiskey itself, even when pure, has evil effects enough on the system save when used on a physician's prescription. But when artificially produced from cologne spirit by adding sugar, caramel, syrup, Tonka, bead oil and various bitter flavoring materials, with uncertain proportions of alcohol, it becomes even medically of no value. When we give a stimulant we all wish to know just what we are using. So uncertain have become many of the alcoholic preparations, that some of us are inclined to use alcohol and dilute it ourselves to the exact proportion we desire. We thus have a pure article of known strength and free from that which often causes irritation of the digestion tract.

Sugars also were found adulterated, notably those of foreign manufacture. The adulterants are poisonous—Prussian Blue and Ultra-marine Blue. Fortunately for Ohio the prosecutions have pretty well driven these products out of that state. But they are doubtless sold in other States and in increasing quantities, for it means an extra profit of perhaps half a cent a pound.

The milk products of Ohio must be remarkably pure if only 11 cases were prosecuted. We spoke last month of our beliefs in regard to the regulation of the sale of this food.

The other products which were found adulterated were chiefly patent medicines. The work of the Commissioner in this line has been original. His contention is that preparations containing opium, morphine, chloral, cocaine, etc., should be so marked. If so marked they may be sold under the same restrictions as such poisons are usually sold. Surely that is reasonable. Medical men in Ohio must of course support him, and medical men in other States seek for the same law which will enable their agents to regulate these matters. Our asylums, homes, refuges and hospitals are filled with wrecks brought there by the use of patent medicines which contain these poisons, while claiming to be harmless. It may not be wise for us personally to fight these frauds, but we can do something to bring about righteous legislation in the matter and in securing its enforcement. Speak out, doctor! It is well worth while.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### URETHRITIS IN MALE CHILDREN.

ISAAC A. ABT, M.D.,

Professor of Diseases of Children, Northwestern University Woman's Medical School; Attending Physician Diseases of Children, Michael Reese and Provident Hospitals.

WHILE the vulvo-vaginitis of little girls is of relatively common occurrence, and has received much attention in the literature of the past ten years, the urethritis of male children is of less frequent occurrence, and the reported cases are less numerous. The urethritis in little boys may be specific (gonorrhœal) or non-specific. S. Rona (*Archiv f. Dermatol. u. Syph.*, 1893), had opportunity to study fifteen cases of specific urethritis in boys, and treats of the non-specific cases in a light vein, as though they did not occur. Baginsky (*Lehrbuch d. Kinderkrankheiten*) considers various etiological factors in connection with the non-specific variety. Thus he believes (*a*) that urine containing an excessive quantity of urates, (*b*) traumatism, (*c*) extension of a balanitis or a balano-posthitis to the urethra, or the extension of pus from an eczematous area to the urethra, (*d*) masturbation, may give rise to the condition under consideration. In answer to this array of causes, Rona contends that urethritis is not due to masturbation, for in the years during which masturbation is most common, the urethritis occurs least often. He rejects pin-worms, phimosis, eczema and scabies as etiological factors. Of chemical and mechanical irritants, he says that the resulting inflammatory condition disappears rapidly.

There can be no doubt that cases of non-specific urethritis do occur. Koplik has had opportunity to study cases of this kind, and believes that they are due to inflammation of the meatus and fossa navicularis. Koplik is of the opinion that most of the cases



are caused by an infection due to some innocent manipulation by mother or nurse, though he admits that this explanation is not satisfactory in all cases. It need hardly be added that Koplik made bacteriological examinations in the cases alluded to, which showed the absence of gonococci.

I have notes of two cases of the non-specific variety of urethritis, both occurring in young children who were suffering from febrile disorders, with highly acid urine heavily laden with uric acid salts.

CASE I.—A. M., age 16 months, was taken suddenly ill with vomiting, restlessness, and abdominal pain. The temperature, which was 105° F. on the first visit, and which had fallen to 101° the next morning, varied slightly from this point for the three succeeding days. Examination of head, throat, and thoracic organs was negative; the abdomen was distended; the pulse was accelerated; the stools were soft, of a greenish color, contained undigested food material and mucus; they were frequent, and of an offensive odor. On the second day of the illness the mother directed my attention to a discharge from the urethra which had formed a crust over the orifice. The child suffered during micturition, because the meatus was plugged and interfered with the passage of urine. Upon removing the crust, a thin, milky secretion was seen to trickle from the urethra. The meatus was reddened; the prepuce was slightly swollen.

The urine was acid and deposited a large quantity of urates on standing. The microscopical examination showed the presence of pus cells, epithelium and staphylococci. The treatment was directed against the gastro-intestinal disturbance and cooling lotions were applied to relieve the discomfort caused by the irritation of the meatus and the swollen prepuce. The discharge ceased in a few days after the boy recovered from his gastro-intestinal disorder.

CASE II.—J. K., age 15 months, previously in good health, was taken ill with an attack of diffuse bronchitis with high temperature. On the second or third day my attention was called to a yellowish purulent discharge from the meatus. The child had undergone ritual circumcision one week after the birth. The meatus was red and swollen, manipulation caused pain. Urination was painful. The urinary examination showed the presence of large quantities of urates. Examination of the pus showed

the absence of gonococci. The treatment was directed against the bronchitis, and the local applications of lead water were employed for the relief of pain. The discharge ceased in about five days. A subsequent examination of the urine showed it to be normal.

Whether the urethritis in these two cases was due to the acidity of the urine, or to an infection from without, or both, must remain speculative with the information at hand; though they are cited as proof that cases of non-specific urethritis do occur in young children (1) because the gonococci were absent in both cases, and (2) because the diseased condition terminated spontaneously in a few days.

*Gonorrhoeal or Specific Urethritis.*—The symptoms in this variety present much the same picture as is seen in the adult. Koplik has seen children in arms suffering from this condition. Bokay observed 109 cases of urethritis in children, many of whom, as he points out, suffered for weeks or months from a urethritis. Most of these were probably gonorrhoeal. Twenty-seven occurred during the first year, 36 from the first to the third year, 32 from the third to the seventh year, and 14 from the seventh to the fourteenth year.

Holmes (*Surgical Treatment of the Diseases of Infancy and Childhood*, 1868) devotes a special chapter to this subject. He says he has not infrequently seen cases of gonorrhoea in male children.

Rona says that in his fifteen cases the process was in every case a urethritis totalis, the disease becoming chronic, and usually lasting for months.

Moncorro (*La Medicina Infantile*, 1894) has seen many cases of gonorrhoea in small boys.

Von Arsdale (*N. Y. Med. Journal*, 1890) has frequently observed gonorrhoeal urethritis in young boys. One case was in a child ten months old; two cases in children from one to four years.

I have notes of two cases.

CASE III.—P. L., a boy, aged two years and three months, was seen in private practice for the first time January 7, 1898. The parents are of average intelligence and live in very comfortable quarters. The previous health of the child was good. The child was pale, had a temperature of 100.°8 F., and was suffering from

a urethral discharge which the mother had noticed for two days. The meatus was red and swollen; the penis was swollen, showing the presence of lymphangitis. The child experienced great difficulty in micturition, and cried with pain at each attempt. He urinated frequently, and small quantities at a time. Some of the time he suffered from incontinence. The urine, which was collected in two portions, showed both portions cloudy. A thick, yellowish pus oozed from the urethra. A microscopical examination

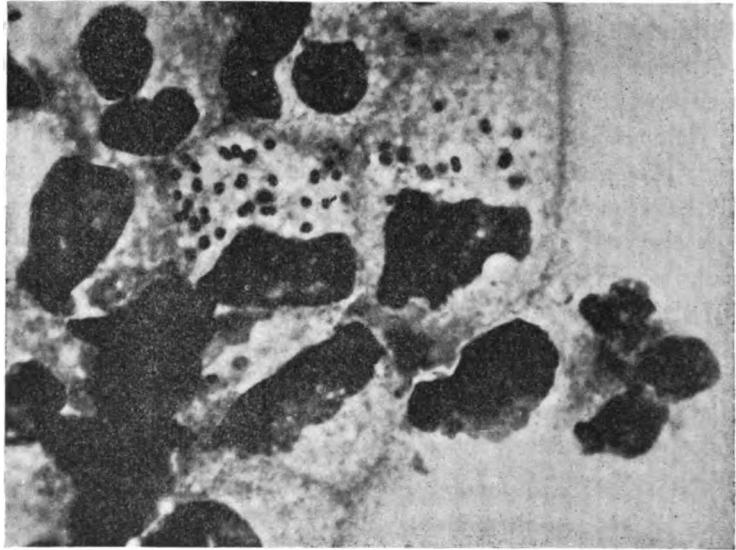


FIG. 1.

of the pus showed the presence of gonococci. The accompanying micro-photograph (Fig. 1) is from a slide made from this case. For the photograph I am indebted to Dr. W. H. Knapp of this city. At the end of about two weeks the mother directed my attention to a purulent discharge from the rectum. The child complained of pain with each evacuation of the bowels, and intense itching about the anus. Examination showed the anus reddened, the margins slightly swollen. Upon causing a dilatation of the anal orifice, a purulent discharge was observed. Some of this pus was collected for microscopical examination, which showed the presence of gonococci. The child suffered from rectal irritation and tenesmus. The stools did not appear abnormal in color or composition, though they were small, frequent, and at least twice were streaked with blood.

The *treatment* consisted in the regulation of the diet, and for

the first few days in the administration of one drop doses of fluid extract of hyoscyamus four times daily for the relief of pain and vesical tenesmus. At the end of the first week urethral injections of about 1 per cent solution of ichthyol were ordered one daily; later, permanganate of potash solution in the strength of 1 to 5,000 was used.

For the rectal infection three ounces of peroxide of hydrogen diluted one-half were injected three times daily, followed by a suppository of bisulphate of quinine and ichthyol. At the end of about seven weeks the urethral and rectal discharge disappeared, and the little patient, who, up to this time, had been weak and anemic, improved rapidly, and has not suffered any relapse.

The source of infection in this case could not be ascertained. The nurse girl, as usual, was suspected, and was dismissed. While we have not very far to seek for the source of the rectal infection, the exact manner in which it took place could not be learned. The mother had been previously cautioned regarding the infectious nature of the purulent discharge. She said that she exercised great care, and could not throw any light on the rectal infection.

CASE IV.—A colored boy, age nine years, who was seen at the Dispensary of the Northwestern University Medical School during the summer of 1898. He has been sick for five weeks with painful urination and a purulent discharge from the urethra. There is phimosis, and a purulent discharge from the urethra. Microscopical examination shows the presence of gonococci. In this case it was elicited that shortly before the patient was taken ill, his cousin, a young woman nineteen years of age, came to make a prolonged visit to the family. During her stay she occupied the same bed with the patient. The boy was reticent, and denied any immorality on his part or that of his cousin, though the circumstances are suspicious.

*Modes of Infection.*—In private practice, as well as in hospital and dispensary practice, it is in most cases difficult to elicit accurately the mode of infection, though it cannot be doubted that most cases are due to actual sexual contact, a lesser number to manipulation of the parts with infected hands, linens and the like. The recorded cases show that the majority of children acquire the disease from servants, or from little girls suffering from Vulvovaginitis.

*Complications.*—Strictures occur the same as in adults. Kammerer (N. Y. Med. Journal, 1890) reports a case in a child two and a half years old, who, six months after an attack of gonorrhœa, developed a stricture which did not permit the finest catheter to pass. A suprapubic puncture was made to empty the bladder. Two strictures were found in the anterior urethra, and one impermeable in the membranous portion. The deep stricture was treated by performing an external urethrotomy. The anterior strictures were relieved by dilatation.

Cystitis has been observed by Viger and Moncorro. Rona encountered the complication in two cases. In one case continued and persistent hemorrhage occurred.

It had been supposed that epididymitis and orchitis did not occur as complications, owing, perhaps, to the functional inactivity of the organs. True, the condition has been seldom observed, though Rona reports a child fifteen months old suffering from a urethritis totalis. In about twelve days after the beginning of the disease it was observed that the scrotum was swollen, and both testicles were painful. After fourteen months the patient was dismissed as cured, though a little hard nodule, the size of a pea, remained in the left epididymis.

Gonorrhœal arthritis is not reported as occurring after the urethritis in male children, though it occurs frequently enough as a complication of vulvo-vaginitis and purulent ophthalmia.

The gonococcus has been found in these joint effusions. It is an interesting observation that the arthritis which occurs in children is never of so severe a type as that which occurs in adults. There is usually little or no fever. Ankylosis, which is so frequent a sequel in the adult cases, is unknown in the child, and is approached only in a few cases by temporary stiffness in the joint.

Lymphangitis of the penis, balanitis, and balano-posthitis occur commonly. Rectal gonorrhœa has not been observed in any of the cases previously reported.

*Diagnosis.*—The diagnosis presents but few difficulties, and differs in no important detail from that of adults. The specific must be differentiated from the non-specific variety. This differentiation depends on the presence or absence of the gonococci, and also upon the duration of the disease and the occurrence of complications. The gonococcus must be found in considerable number, and arranged in groups within the leucocytes. It must de-

colorize very readily by Gram's method of staining. The best culture medium is made from the blood or serous fluid of man.

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### REPORT OF INTUBATIONS PERFORMED IN THE DIPHTHERIA WARD OF THE STEFANIE-KIN- DERSPITAL, BUDAPEST. (Total 291 Cases.)

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Director of the Stefanie-Kinderspital, Budapest.

Translated from the German with the special sanction of the author.

BY

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O'Dwyer's intubation was performed for the first time, in the diphtheria ward of the Stefanie-Kinderhospital, which is under my charge, in August, 1890. During the following five months, intubation was employed alternately with tracheotomy, but from January 1, 1891, to the present day, every stenotic patient, if an operation seemed to be indicated, was subjected to intubation exclusively. A primary tracheotomy was not performed at all during the last 20 months. The space of time in which we have performed intubations embraces, therefore, 25 and 20 months, re-

spectively, and 291 cases without selection. I wish to state that a premature intubation was not done in a single case, and that we were frequently in a position to observe the recovery of the milder forms of stenosis without operative interference. On the other hand, I considered an operation contra-indicated, when severe septic symptoms were already present, or where the extension of the fibrinous exudate to the bronchioles could be taken for granted.

Of the 291 cases, 100, that is, 34 per cent, made recoveries; of these, laryngitis crouposa developed in 279 cases in the course of faucial diphtheria or without the latter, while in 12 cases, secondary laryngitis crouposa appeared after measles or scarlet fever.

Of the 279 cases belonging to the first group, laryngitis crouposa was observed in 212 cases, either accompanying faucial diphtheria or developing during its course, while in 67 cases appeared the clinical picture of croup without preceding diphtheritic faucial symptoms, in fact, without the presence of the latter.

Of the 212 croup cases which appeared in connection with faucial diphtheria, 65 in all (30.5 per cent) made recoveries.

The summary of these cases according to age is as follows:

From 0-1 year,	9 cases,	( 1 case cured).
" 1-2 years,	63 "	(11 cases " ).
" 2-3 "	51 "	(20 " " ).
" 3-4 "	44 "	(13 " " ).
" 4-5 "	21 "	(10 " " ).
" 5-6 "	10 "	( 5 " " ).
" 6-7 "	6 "	( 2 " " ).
" 7-8 "	3 "	( 0 " " ).
" 8-9 "	2 "	( 1 case " ).
" 9-10 "	1 case,	( 1 " " ).
" 10-11 "	2 cases,	( 1 case " ).
Total,	212 cases,	(65 cases cured).

Of the 65 cured cases, croup membranes were expelled 17 times, as follows:

Once by a 10-months-old child.  
 Once by a 1½-year-old child.  
 Once by a 2-year-old child.  
 Five times by a 3-year-old child.  
 Once by a 3½-year-old child.  
 Three times by a 4½-year-old child.  
 Twice by a 5-year-old child.  
 Once by a 6-year-old child.  
 Once by a 9-year-old child.  
 Once by a 12-year-old child.

Secondary tracheotomy was performed eight times, with success, however, only once, and that in the case of a child  $4\frac{1}{2}$  years of age.\*

Of the 67 cases of laryngitis crouposa not accompanied by faucial diphtheria, 32 (47.5 per cent) recovered; according to age they rank as follows:

From 0-1 year,	8 cases,	(cure in 1 case).
" 1-2 years,	20 "	( " " 5 cases).
" 2-3 "	13 "	( " " 6 " ).
" 3-4 "	15 "	( " " 12 " ).
" 4-5 "	5 "	( " " 4 " ).
" 5-6 "	2 "	( " " 1 case ).
" 6-7 "	1 case,	( " " 1 " ).
" 7-8 "	3 cases,	( " " 2 cases).
Total	67 cases,	(cure in 32 cases).

Of the 32 cured cases, croup membranes were ejected 9 times, follows:

- Twice by 2-year-old children.
- Three times by 3-year-old children.
- Once by  $3\frac{1}{2}$ -year-old children.
- Twice by 4-year-old children.
- Once by 5-year-old children.

Secondary tracheotomy was done in 3 cases, one of which, a child  $+ 3\frac{1}{2}$  years old, made a recovery.

Of those 12 croup cases, which appeared secondary, as the sequel of measles or scarlet fever, 3 (25 per cent) recovered. Croup, the result of measles, appeared 9 times (1 cure), as the result of scarlet fever 3 times (2 cures).

These cases are grouped according to age, as follows:

From 0-1 year,	1 case,	(no cure ).
" 1-2 years,	3 cases,	(1 " ).
" 3-4 "	5 "	(1 " ).
" 4-5 "	1 case,	(no " ).
" 5-6 "	1 "	(no " ).
" 9-10 "	1 "	(1 " ).
Total,	12 cases,	(3 cures ).

\*For the first four days, intubation was attended by success. On the fifth day the stenosis of the upper air passages could not be overcome and we were obliged to resort to tracheotomy.

†Intubation was successful for two days. On the third day, the stenosis of the upper air passages could not be overcome by the use of the tube. On that account tracheotomy seemed to be urgently indicated.



In the 100 cases which were cured out of the total number, the space of time during which the tube was retained is as follows:

$\frac{1}{2}$ ,  $1\frac{1}{2}$ , 2, 6,  $6\frac{1}{2}$ , 10 (in 3 cases), 11,  $17\frac{1}{2}$ , 18, 20 (in 2 cases), 21 (in 2 cases), 22, 24,  $24\frac{1}{2}$ , 26 (in 2 cases), 27,  $28\frac{1}{2}$ , 30, 35, 36 (in 6 cases), 39, 41 (in 2 cases), 43 (in 2 cases), 44 (in 2 cases), 45 (in 2 cases), 46, 47, 48 (in 4 cases), 50, 51 (in 3 cases), 52 (in 2 cases),  $53\frac{1}{2}$ , 55, 56, 58 (in 2 cases),  $58\frac{1}{2}$ , 59, 60,  $60\frac{1}{2}$ ,  $63\frac{1}{2}$ ,  $64\frac{1}{2}$ , 65, 67,  $67\frac{1}{2}$ , 68,  $68\frac{1}{2}$  (in 2 cases),  $69\frac{1}{2}$  (in 2 cases),  $75\frac{1}{2}$ , 76, 77, 78, 85, 86, 87, 93, 94, 95, 96 (in 2 cases), 101, 107,  $121\frac{1}{2}$ , 129 (in 2 cases), 130, 133, 134, 136, 142,  $143\frac{1}{2}$ , 145, 153, 154, 184, 227, 243, 360 hours.

The minimum time, therefore, amounted to  $\frac{1}{2}$ \*,  $1\frac{1}{2}$ , 6,  $6\frac{1}{2}$  and 10 hours. The maximum amounted to 184, 227, 243 and 360 hours. The tube was retained in 16 cured cases longer than 5 times 24 hours. This circumstance, to which I called special attention in my report read at Hallé, quite effectually refutes the general validity of that assertion of Escherich, according to which, if final removal of the tube does not take place on the 5th day, secondary tracheotomy should be resorted to, for the avoidance of severe decubitus.

The number of intubations in our cured cases varied, as follows:

In 35 cases the patient was intubated once.						
" 27	"	"	"	"	"	twice.
" 18	"	"	"	"	"	3 times.
" 7	"	"	"	"	"	4 "
" 4	"	"	"	"	"	5 "
" 6	"	"	"	"	"	6 "
" 2	"	"	"	"	"	7 "
" 1	"	"	"	"	"	14 "

Total, 100 cases.

I wish to remark that at first the tube was removed as a matter of trial, at the end of the first 24 hours, while later the first extubation under normal conditions took place at the expiration of 48 hours.

Intubation has caused me no difficulty worthy of mention, but several times I have met with obstacles in the use of tubes recently procured from the firm of Ermold of New York. This was

\*This case of diphtheritic croup, which is especially instructive on account of the results achieved by intubation, I shall discuss in detail further on.

caused, probably, by the bulging extremity.\* Generally, I used tubes furnished by Windler of Berlin, by Jetter and Scheerer of Tuttlingen and Tiemann of New York. The latter had a straight extremity.

A pushing down of pseudo-membrane during intubation I have observed only in a very few cases, but this never assumed a critical form, as, after extubation, the membrane which had been pushed down, was immediately expectorated.

The imposing pseudo-membrane shown in the accompanying illustration (Fig. 1) and preserved in the hospital collection, was also a forced down croup membrane which was expectorated whole, immediately after extubation.†

Extubation was always performed by means of the cord fastened to the tube. On that account I have had very little experience in the use of the extractor. I have noticed no injurious results from leaving the cord attached to the tube. Even the smallest patients bore it well, and only in a few cases was it bitten through.

Intubated patients were usually fed without much difficulty, only, now and then, on account of great difficulty in swallowing, frequent extubation became necessary, as well as the application of nourishing enemata. The stomach tube was not employed in a single case.

\*The Ermold tube with broad end was used in only a few cases.

†The patient, nine years of age, suffered from diphtheritic croup and immediately after the expectoration of the pseudomembrane was reintubated. The asphyxia ceased for 24 hours. Death took place 48 hours after intubation. On autopsy, the membrane which had been pushed down, was found reproduced, as it were, in the air passages.



Fig. 1.

Of the 100 patients cured, the time of their stay in the hospital is as follows:

In 1 case, 3 days.	}	In 2 cases, 23 days.
" 1 " 5 "		" 1 case, 24 "
" 3 cases, 6 "		" 1 " 25 "
" 6 " 7 "		" 4 cases, 26 "
" 1 " 8 "		" 1 case, 27 "
" 6 " 9 "		" 2 cases, 28 "
" 6 " 10 "		" 2 " 29 "
" 2 " 11 "		" 1 case, 30 "
" 2 " 12 "		" 1 " 31 "
" 7 " 13 "		" 1 " 32 "
" 7 " 14 "		" 1 " 33 "
" 2 " 15 "		" 1 " 35 "
" 3 " 16 "		" 1 " 36 "
" 6 " 17 "		" 1 " 39 "
" 8 " 18 "		" 1 " 42 "
" 3 " 19 "		" 1 " 56 "
In 3 cases, 20 days.		" 1 " 57 "
" 6 " 21 "		" 1 " 65 "
" 2 " 22 "		" 1 " 86 "

These 100 cured cases took in all, 1918 days of hospital nursing, so that 19 days, on an average, were devoted to each patient.

The percentage of cures was the most favorable in April, 1892 (of 18 cases, 12 recovered), the most unfavorable, in November, 1891 (of 17 cases, only 2 recovered).

On the 191 fatal cases of intubation, death took place after treatment, as follows:

On the 1st day, in 48 cases.	On the 14th day, in 48 cases.
" " 2nd " " 57 "	" " 15th " " 2 cases.
" " 3rd " " 23 "	" " 16th " " 1 case.
" " 4th " " 20 "	" " 17th " " 1 "
" " 5th " " 10 "	" " 18th " " 1 "
" " 6th " " 5 "	" " 21st " " 1 "
" " 7th " " 4 "	" " 22nd " " 1 "
" " 9th " " 4 "	" " 23rd " " 2 cases.
" " 10th " " 2 "	" " 25th " " 2 "
" " 11th " " 1 case.	" " 32nd " " 1 case.
" " 12th " " 1 "	" " 36th " " 1 "
" " 13th " " 2 cases.	

\*In these cases, final extubation was accomplished quite early and the patients were subsequently under further observation at home.

†In these cases, the cause of death was, for the most part, diffuse, catarrhal pneumonia.

An autopsy was performed on 46 of these 191 fatal cases; the post mortem examination was made on those cases in which death took place after the 4th day of hospital treatment. Decubitus was found in the usual places in 21 cases, severe extended decubitus (every time in the larynx) in 3 cases, in 4 cases perichondritis laryngealis, and in 1 case an extensive perilaryngeal abscess. Severe catarrhal pneumonia was found in 14 cases.

After all this, I can show, by virtue of my experience gained in 291 cases, that the O'Dwyer method is a procedure which even today could be substituted wholly for tracheotomy in the operative treatment of laryngeal croup. The operation is simple and feasible in hospital practice, the nursing of the intubated patient offers much less trouble than that of the tracheotomized patient. While the two nurses appointed for a ward could not care for more than 4 or 5 tracheotomized patients, 12 of those who were intubated could receive very careful attention. In regard to the nursing of tracheotomized and intubated patients, the experienced attendant of the City Hospital in Boston very pertinently remarked: "The time we used to spend in taking care of the tracheal tube is now occupied in feeding the children, but on the whole it is less work and more agreeable to take care of intubations."\*

On the ground of the data which I have cited, I am determined to perform intubation, systematically, in future, in the hospital under my charge and to permit primary tracheotomy only in 2 cases: (1) Where beside the existing laryngo-stenosis, a high degree of pharyngo-stenosis is also present; (2) where, on account of severe œdema of the *aditus laryngis*, no success can be expected from intubation.

The present report embraces only those cases which occurred in the hospital ward. In private practice, I often had the opportunity, of course, to practice intubation, but the patient was ordered to the hospital immediately after the operation. I had only 6 cases in which the after treatment was conducted at home. Of these 6 cases, 3 recovered. Frankly speaking, I am strongly opposed to conducting the after treatment at home, as in most cases constant trained attendance is very difficult to obtain.

Budapest, August 22, 1892.

\*J. B. Ball, *Intubation of the Larynx*, London, 1891.

## PHILADELPHIA PEDIATRIC SOCIETY.

FREDERICK A. PACKARD, M.D., IN THE CHAIR.

October 11, 1898.

DR. J. C. GITTINGS presented a case of CONGENITAL ABSENCE OF THE HUMERUS. He said: "I have a case of congenital absence of humerus, with a rudimentary attempt at a radius and ulna to present. There is no articulation with the shoulder joint, the union being purely fibrous. The carpal bones are represented by some four or five small bodies, the hand itself is somewhat small, though well formed. The particular interest in this case is its etiology. I believe there are only four admissible causes for deformities of this kind: maternal impressions, intra-uterine constrictions from bands of lymph or from the cord, local arterial disease, or some deficiency in the original germ itself. In this case I was not able to have a personal interview with the mother, as she lives out of town, and the question of maternal impression must remain undecided. The question of constricting bands can be excluded on account of the comparatively perfect development of the hand, and for the same reason local arterial disease, so that we are forced to either one or the other of the remaining explanations: maternal impressions or some defect in the original germ itself. The radiograph that I had taken was not altogether successful, owing to the extreme nervousness of the child. It shows a full complement of phalanges and metacarpal bones, five carpal bones, and a peculiar formation which I take to be the radius and ulna. Two short bones are seen, at an obtuse angle, and joined at the angle of flexion by a thin web.

From physical examination one would be led to think that the upper portion was a rudimentary humerus, but the fact that it is all of one piece, and partially joined by a web, makes it seem more probable that it represents a malformation of the radius and ulna.

The boy was operated on for double genu valgum. After operation the temperature was  $101^{\circ}$ , and the following day instead of coming down it showed a rise to  $102^{\circ}$ , and for the succeeding two weeks it ran an extremely hectic course for which I could find

no cause, except an ill defined exudation at the apex of the left lung. As it showed no tendency to resolve, and was remarkable chiefly for its dullness on percussion, I aspirated and withdrew two or three cc. of a serous fluid, not bloody, which failed to show the presence of tubercle bacilli on staining, and was sterile on culture, both on agar and in bouillon. Within four or five days of the exploratory puncture the temperature reached normal.

## DISCUSSION.

DR. J. HENDRIE LLOYD.—We have under our care now at the Home for Crippled Children in this city a girl who has complete congenital absence of both lower extremities. They are represented simply by little fleshy tabs at the hips. On one I think there is a rudimentary digit. There is no explanation for that case. The girl manages to get around very well by the aid of an apparatus designed for her by Dr. Shoemaker; the pelvis is set in a sort of basin supported by iron frames with artificial legs and feet enclosed in shoes and stockings. She progresses by means of crutches. The malformation is much more extensive than in this case, but it evidently belongs to the same type of congenital deformities.

DR. RICHARD A. CLEEMANN.—In connection with the case just exhibited by Dr. Gittings, I expected to show an instance of the congenital absence of both femurs occurring in my obstetric practice, but for some reason the mother has failed to bring the child here. Its absence, however, need not prevent me from reporting the case. The anomaly is grave enough to be placed in the group of "monsters" in the classification of Geoffry H. Hilaire; it belongs to the same family of *ectromelus* (εκτρωσις abortion, and μελος a limb), and the same genus *phocomelus* (φωκη a seal, μελος a limb), as that presented by Dr. Gittings. The femurs are entirely absent, or in such a rudimentary condition that they cannot be distinguished without dissection, the legs seeming to be articulated directly upon the pelvis. The feet, otherwise perfect, are turned upwards and outwards (equino-vulgus), but are readily placed in the proper position by manipulation; the right foot points backwards from external rotation of the limb, but can also be readily brought forward to its normal relations. In all other respects the child is normal, the penis and scrotum, which are

said usually to share in lack of development when the lower limbs are thus affected, being perfectly formed.

The child, three months old, strong and lusty, is the offspring of a primipara of Irish birth, now thirty years old, and married one year. As far as known no anomalies have been observed in her family or that of her husband who is like herself of normal development. I saw nothing in her pregnancy to call for comment other than that the hydræmia of that condition was more marked than usual. The "waters broke" prematurely about twenty-four hours before active labor commenced, the process thereafter occupying thirteen hours. The foetus presented by the right foot, the rotation outwards and backwards of which, described above, became of interest in the diagnosis of the position of the body. The foot pointed towards the left of the mother's pelvis, which led to the natural inference that the back of the foetus was toward her right, while further observation showed that actually the opposite was the case, the back being toward the left.

I may add that there is a history of maternal impression in this case. The mother says that when she was one or two months pregnant she was accosted by a beggar with very short legs, whose appearance shocked and disturbed her very much. At this period of foetation the lower extremities appear only as a trace, so that to those who believe in the effect of maternal impressions in producing such anomalies this encounter with the beggar may be looked upon as the cause of the unfortunate arrest of development.

DR. W. S. STEWART.—What seems to be rather confirmatory of the fact that there are many anomalies resulting from maternal impressions, which certainly occur, is that one such case almost involved a malpractice suit in my own experience. A pregnant mother was boarding in a house where a man with a glass eye sat opposite to her at the table and she was particularly impressed by looking at that man's apparently natural eye, while still recognizing the fact that it did not move. When her child was born it could not see with the eye corresponding to the one that was artificial in the man mentioned. I had the child examined carefully by a specialist and he said that the eye was of absolutely no use to the child.

Another case was a child born without any injury in birth. So

far as I could determine, it could not use its arm at all. I asked the mother if she knew of any cause. She said that she did not, excepting that she, too, was boarding in a house where a man sat opposite to her who never used his arm; she said she could not account for her child's condition upon any other ground, unless I had done something in its delivery that had caused the paralysis. I at once took the child down to Dr. Agnew and asked him to see if there was any displacement or other injury that could account for the condition. He examined it carefully and said that it was simply a want of function on the part of the nerves to that arm, and that it would certainly gain use of the arm eventually. It always remained in that condition, however, and I know if I had not taken the child to Dr. Agnew I would have been obliged to pay the penalty.

I think these two cases seem to point to the fact that there are such things as maternal impressions, which produce such results, as I narrated. I have written upon this subject a paper and made a collection of a great many cases, all of which seemed to be traced back to something of that kind. I will state one case: A lady saw a man fall from a jack upon which he was standing while painting the windows of the house opposite. He was bespattered with blood, and she was after this constantly dreading that something would result from seeing him in this condition. She said, "I am afraid my child will have some marks on it." When it was born it was covered here and there with birth-marks in the regions in which she had feared they would appear.

DR. F. A. PACKARD.—I recall a rather interesting case, a patient, who had been kicked in the mouth when a child, and received a wound which left a cicatrix looking precisely like that resulting from the operation for hare-lip. She had six children, and throughout the whole of each pregnancy she worried constantly, and ceased only when she was told that the child, when born, did not have a hare-lip, so that maternal impressions in that case at least were not very strong. In this case the woman really worried herself sick with each pregnancy, expecting the child to have a hare-lip and the impression made upon the mother was, I think, much more powerful than where a person happens to see some deformed creature in the street.

DR. J. C. GITTINGS.—One of the most marked cases of maternal impressions on record occurred at the German Hospital a few



years ago, under Dr. Whiting. A woman was admitted suffering from fatal burns of the back, thighs and buttocks. She was at the time over eight months pregnant. In the course of 24 hours, shortly before death, she miscarried. The child when born was apparently normal and was wrapped up and placed aside until after the delivery of the placenta. Some fifteen or twenty minutes afterward, Dr. Whiting found blisters had appeared on the skin of the child in practically the same localities in which the mother had sustained burns. The child lived but a few hours and its body is at present preserved in the German Hospital Museum.

I am indebted to Mr. Wilbert of the German Hospital, for the radiograph, and his knowledge of osteology, both normal and pathological, as exhibited by the X-rays, has aided me greatly in my final opinion of the case.

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DR. L. C. PETER exhibited two cases of OBSTETRICAL PALSY in brothers four and eight years of age. In both cases the head presented, labor was tedious and in the younger boy instruments were used. After this birth the left arm and shoulder were found to be paralyzed, and in the younger patient the clavicle was fractured. Muscles of the shoulder and upper arm wasted rapidly, the shoulder drooped, the humerus was rotated inwards, the elbow slightly flexed and the forearm in the position of pronation. In the older boy both scapulæ were prominent and their inner borders stood off from the chest wall—the left more than the right. There was no weakness on the right and the muscles responded normally to galvanism. The biceps, brachialis, anticus, deltoid, supraspinatus, infraspinatus, the rhomboid and serratus magnus muscles on the left were wasted, and responded more vigorously to the positive than to the negative pole of a galvanic battery. The serratus magnus was not involved in the younger boy.

A third case occurred in an infant seven months old. Labor was instrumental and sometime after birth the left arm was found to be paralyzed. There was neither wasting nor deformity of the shoulder, no resistance on passive motion, no history of injury, fever, or convulsions after birth and no evidence of rickets. The reflexes were normal.

DR. PETERS considered the direct cause of injury in obstetrical palsy to be compression of the neck by the blade of the forceps badly applied, or by stretching of the nerves by drawing the head

aside to liberate the arms and shoulders in head presentations; and direct pressure by the operator's hand, or over stretching of the neck in delivering of the after-coming head in breech presentations.

DISCUSSION.

DR. J. HENDRIE LLOYD.—These cases are extremely interesting. I should judge that the main involvement here is in the posterior thoracic nerve, the external respiratory nerve of Bell. This causes a paralysis of the serratus magnus muscle, which paralysis allows this peculiar bulging posteriorly of the lower angle of the scapula, giving the child a peculiar winged appearance. Such cases are rare; I never heard before of a case occurring from an accident during birth. Therefore, I think they have a peculiar interest. I have once seen in a child a bilateral paralysis of the serratus magnus muscle, the causation of which was obscure. This paralysis occurs sometimes in adults from carrying a heavy weight on the shoulder. The posterior thoracic nerve passes through the substance of the middle scalena muscle. The carrying of a heavy weight on the shoulder may cause pressure on the nerve, or the body of the nerve may perhaps be twisted or strained in that muscle, in that position, and thus is caused this peculiar paralysis of the serratus magnus muscle on one side, permitting the inner angle of the scapula to bulge. The serratus magnus muscle has the peculiar function of holding the scapula close to the thorax and in that way presenting a firm basis of support for the action of the head of the humerus in the shoulder-socket. As an example of birth palsy, this is a case of great interest. I think with reference to the reactions of degeneration in these cases, that we should know positively about the faradic reactions before we attempt to say that there is a true reaction of degeneration. Dr. Peter tells me he was unable to test the faradic contractility, but it should be verified before the case goes on record. The deltoid and biceps muscles are certainly not paralyzed on either side.

DR. J. P. CROZER GRIFFITH.—Whether or not the serratus magnus is involved, the history indicates that the whole left arm has been severely paralyzed. I have talked to the mother and she corroborates what Dr. Peter says, that the child could not lift its hand higher than its head. At the present time the smaller child can only lift the hand as high as its head. There is great

softness of the muscles; I think the cases have to go down as instances of true obstetrical paralysis. An interesting thing is that two children in one family should be affected. Another interesting point in the diagnosis from cerebral monoplegia. Cases of cerebral monoplegia occurring at birth do take place, although they are certainly very rare, and we have constantly to keep them in mind. Dr. Peter has dwelt upon the question of diagnosis, and there seems no possibility of considering these as cases of cerebral monoplegia.

As to obstetrical paralysis, there is in a French journal, a report of a so-called epidemic of obstetrical paralysis. There occurred in the practice of one midwife 12 cases of paralysis of one arm, all due to injury during labor. They were all apparently breech presentation, for the report states further, that after the body was born, traction was made upon it in order to extract the head. Guillemot, who reports the cases, takes the ground that the former and quite commonly accepted explanation of the production of this paralysis is wrong. That is to say, it is not an injury due to traction upon the arm or shoulder. We sometimes inquire whether the arm has been pulled upon, whether a blunt hook has been put in the axilla, and so on; Guillemot believes that they are due to traction upon the body or head, or to extreme extension of flexion of the body, or, especially, to bilateral movements which wrench the fibres of the fifth to the seventh cervical nerves close to the vertebræ. Tieux has gone carefully into the question of the causation of obstetrical paralysis and finds the same explanation, probably the true one. He has experimented upon rabbits and upon dead human fetuses to see what injury he could produce in extracting an after-coming head, and has found the nerves injured in the manner described. We must always remember when asking whether any instruments have been used, that the only way in which true obstetric paralysis could be caused is by traction and by the use of instruments, swinging the head from side to side; such a condition is not produced by pressure upon the skull.

DR. F. SAVARY PEARCE.—In view of the fact that there was another child that was born with great difficulty and died soon after birth, and that these two boys have a very similar affection of the left arm, it might be a point of interest to know whether the mother had not a contracted pelvis, which necessitated extreme manipulation.

DR. L. C. PETER.—In regard to the injury of the long thoracic nerve which supplies the serratus, and to which Dr. Lloyd referred, would say, I do not see any reason why it should not be affected as well as the filaments that supply the other muscles. The nerve is derived from the fifth and sixth cervical, which are the trunks injured in these cases. The serratus is undoubtedly weak, although the electrical reaction is not materially altered. In the other muscles, the electrical reaction is distinctly changed. The right side is not affected, although the scapula stands off from the chest wall. The boy is poorly developed, and this in itself accounts for the position of the scapula.

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DR. FREDERICK A. PACKARD reported a case of ARTHRITIS OF THE WRIST occurring in a six-months-old child, the subject of vulvo-vaginitis. Examination of the vaginal discharge showed the presence of gonococci in large numbers. Absolute fixation upon a splint was the only remedial measure that produced any benefit. Entire recovery ensued upon the use of this treatment.

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DR. ALFRED HAND, JR., reported a case of RETROPHARYNGEAL ABSCESS in a boy 20 months old. The onset of the illness was sudden; there was a catarrh of the alimentary tract, including the tonsils, without vomiting, but with a mucous diarrhoea; a catarrh of the respiratory tract extending from the pharynx well down into the swollen bronchi; an eruption of a few varicellar blebs; enlargement of the glands at the angles of the jaw; and a temperature curve ranging from  $99^{\circ}$  in the morning to  $104\frac{1}{2}^{\circ}$  in the evening. Wry-neck, disturbances of respiration, phonation and deglutition were absent. Palpation and inspection of the posterior pharyngeal wall were negative until the eleventh day, when a slight fullness was detected a little to the left of the median line. This increased so slowly that fluctuation could not be felt three days later, but incision at that time evacuated a considerable amount of pus. The extensive induration subsided slowly; the febrile movement continued for several days longer, when the evening rise gave way to a fall of temperature amounting almost to collapse. This was repeated twice, after which convalescence was uninterrupted.

D. L. EDSALL, Recorder,  
330 South Sixteenth Street,  
Philadelphia, Pa.

## BOOK REVIEWS.

DOCTOR PASCAL. By EMILE ZOLA. Translated by Mary J. Serano. Published by the Macmillan Company, New York City. 1898. Price \$1.50.

This is a new edition of one of Zola's famous novels. The revelation which it gives of the estimate which the great author places upon our profession is most interesting. From our American point of view it is by no means complimentary. France may have such men, who fear neither God nor man, and still maintain a high place in the profession. That a devoted student of "science," truth" and "life," absorbed in the horrors of his own family tree, should himself become father of an illegitimate child by his faithful, loving niece is bad enough, but to add to this a belief on the part of the girl that this immorality is comparable with the coming of the Messiah is blasphemous. We trust that it is not a true picture of French life. The many medical details of the book are perhaps a trifle more accurate than usual in fiction.

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*La Diphthérie.* By H. BARBIER and G. ULMANN. Published by J. B. Baillière et Fils, 19 Rue Hautefeuille, Paris. 1898. Price 1fr. 50.

This little volume of about 90 pages contains the latest French bacteriological and clinical observations on Diphtheria. The authors believe that the true diphtheria bacilli are of the long branching variety. They also present clinical distinctions between simple diphtheria and that associated with the lesions of other bacteria, and maintain that this latter variety is but little influenced by the anti-diphtheritic serum.

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A GUIDE TO THE CLINICAL EXAMINATION AND TREATMENT OF SICK CHILDREN. By JOHN THOMSON, M.D., Extra Physician to the Royal Hospital for Sick Children, London, Lecturer on Diseases of Children, Edinburgh School of Medicine. In one crown octavo volume of 350 pages, with 52 illustrations. Cloth, \$1.75, net. Lea Brothers & Co., Publishers, Philadelphia and New York.

The literature of pediatrics is enriched with this compact volume, practically on diagnosis and treatment. The author has properly approached his subject through the field of clinical medi-

cine, in recognition of its rational relationship with other human affections, and the advantages of so regarding it. He points out the initial difficulties, and encouragingly assures his readers that when once they are surmounted, practice among children is at least as easy as among adults. He has endeavored to convey a command of the necessary clinical methods, to inculcate the tact and sympathy which are particularly necessary to success, and to show where the line runs between normality and abnormality, a matter of especial and obvious practical importance.

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**MEDICAL DISEASES OF INFANCY AND CHILDHOOD.** By DAWSON WILLIAMS, M.D., Physician to the East London Hospital for Children. In one 12mo. volume of 629 pages, with 18 illustrations. Cloth, \$2.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York.

Dr. Williams has prepared a work designed to afford the younger practitioners, and those who have not paid special attention to the subject, a guide to the clinical examination and treatment of disease as it occurs in infancy and childhood. He has adopted the rational plan of regarding the subject from the broad standpoint of general medicine, describing disease as it especially affects the young, pointing out the causes of its special incidence, and the peculiarities which the circumstances of child life impress on familiar diseases, and detailing the treatment which pathology, clinical observation and extended experience have shown to be most appropriate and efficacious. The volume will be of service to the general practitioner and pediatricist.

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**DISEASES OF THE BREAST.** By A. MARMADUKE SHEILD, M.B. (Cantab.), F.R.C.S. New York, 1898. The Macmillan Co., 66 Fifth Avenue, Publishers. Price \$5.00.

We have in this book a most excellent guide to the clinical study of diseases of the breast, written by a well known authority on this branch of surgery. We cannot offer any criticism on the matter contained within its pages.

The pathological part of the work is good and not too extensive, and the author has only touched upon those points which aid in illustrating the clinical material dealt with. The many and very excellent illustrations and plates, most of which are original, are one of the great merits of the treatise which commends itself to both surgeon and general practitioner in every respect.

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*Traité de Chirurgie.* Edited by LE DENTU and DELBET. Vol. VI. Paris, 1899. J. B. Baillière et Fils, Publishers.

The seventh volume of this most excellent system is at hand and contains the following sections: Diseases of the Breast, by J.

W. Binaud and J. Braquehage of Bordeaux; *Surgical Affections of the Abdomen*, by Aimé Guinard of Paris; *Hernia*, by M. Jaboulay of Lyons.

The book contains an enormous amount of information when we observe the 844 closely printed pages have been necessary to form the volume. It is up-to-date, and we are glad to see that American surgeons have been more than freely quoted by the several writers, a thing that until recently has not been done by continental profession.

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OPERATIVE GYNECOLOGY. By HOWARD A. KELLY, A.B., M.D.  
Vol II. New York, 1898. D. Appleton & Co., Publishers.

The second volume of this masterly work on diseases of the female urinary and genital organs is quite equal in excellency to its fellow. The work as now presented certainly represents the ideal of what science, illustrating and printing may produce.

We can only say in closing that it is to be hoped that fewer books on medical and surgical topics will be published, but that when they are, let the authors follow Dr. Kelly's example and produce a work that is in every way equal to their reputation.

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*Handbuch der Cystoskopie.* By DR. LEOPOLD CASPER. Leipzig, 1898. Georg Thieme, Publisher. Price \$2.00.

This is a concise and clearly written work of some 220 pages, illustrated by some figures and seven unusually well executed colored plates. The subject of cystoscopy is full treated and in detail, the book ending with a very good chapter on the therapeutic measures employed by means of the cystoscope.

To the gynecologist and surgeon, Dr. Casper's book will certainly be of value and will be highly appreciated.

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*Über Oesophagoskopie.* By DR. LUDWIG EBSTEIN. Vienna and Leipzig, 1898. Wilhelm Braumüller, Publisher.

This is an important monograph of 48 pages, describing the instruments, technique and clinical work done by the author in oesophagoscopy.

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*Klinische Untersuchungen über das Verhalten des Blutes bei Acuten Injectionskrankheiten.* By DR. WILHELM TURK. Vienna and Leipzig, 1898. W. Braumüller, Publisher.

Of late, several works on diseases of the blood have been published in various tongues. The book under consideration details the conditions found in the blood in the acute infectious diseases, namely, croupous pneumonia, typhoid fever, acute articular rheu-

matism, meningitis, septicemia, erysipelas, malaria, morbilli, scarlet fever and epidemic parotitis.

The importance of the study of the pathology of the blood is too evident to need upholding, and this book will add greatly to the knowledge of this subject. Throughout, there are to be found numerous tables of cases which lend much clinical value to the book, which, as the title suggests, is based on the clinical, rather than on experimental work.

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**THE CARE OF THE BABY.** A manual for mothers and nurses, containing practical directions for the management of infancy and childhood in health and disease. By J. P. CROZER GRIFFITH, M.D., of Philadelphia. Second edition, revised. Published by W. B. Saunders, 925 Walnut Street, Philadelphia. 1898. Price \$1.50.

So well known has the first edition of this work become, that an extended review by us is unnecessary. Dr. Griffith's right to speak with authority is everywhere recognized. All phases of infantile life are fully considered, though he carefully states that the book is not to take the place of a physician. Every medical man will find many suggestions in lines where he is continually questioned. The book is printed and bound in a form which well adapt it to hard usage in the household, and yet is attractive in appearance.

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**ESSENTIALS OF MATERIA MEDICA, THERAPEUTICS AND PRESCRIPTION WRITING.** Arranged in the form of questions and answers, prepared especially for students of medicine. By HENRY MORRIS, M.D., of Philadelphia. Fifth edition, revised and enlarged. Published by W. B. Saunders, 925 Walnut Street, Philadelphia. 1898. Price \$1.00.

This new edition of one of Saunders' excellent quiz compends has been brought up fully abreast with the latest information, following closely the last edition of the U. S. Pharmacopœia. New material is perhaps most marked under the heads of Antipyretics and Hypnotics. From the arrangement of the drugs in divisions according to their therapeutic effects, it follows that the table of contents gives a valuable therapeutic index, while the regular index is an equally valuable and complete index of remedies. Hence it has a claim on the attention of both student and practitioner.



THE PHYSICIAN'S VISITING LIST (Lindsay & Blakiston's) for 1899.

Forty-eighth year of its publication. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. Price: for 25 patients per week, \$1.00; for 50 patients per week, \$1.25.

This handy pocket record book presents its usual perfection. No change is made in the arrangement of the 1898 edition. The dose table has, however, been brought up to date by the addition of over forty remedies, not before given. Procure it from your bookseller or send the price direct to the publishers, who will mail it prepaid.

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PRACTICAL URANALYSIS AND URINARY DIAGNOSIS: A Manual for the Use of Physicians, Surgeons, and Students. By CHARLES W. PURDY, M.D., LL.D. Fourth revised edition. With numerous illustrations, including photo engravings and colored plates. In one Crown Octavo Volume, 365 pages, bound in Extra Cloth, \$2.50 net. The F. A. Davis Co., Publishers, 1914-16 Cherry Street, Philadelphia.

A valuable book for student, general practitioner, chemist or life insurance examiner. Convenient in form, up to date in material, well arranged, complete for all practical purposes, full and clear yet not verbose, carefully indexed and well illustrated, this new edition is as sure to go rapidly from the publisher to the profession as were the other three large editions, exhausted within three years. No educated physician neglects urinalysis. We all want the latest, most approved and accurate methods, such as are here described.

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A PRIMER OF PSYCHOLOGY AND MENTAL DISEASE. For Use in Training-schools for Attendants and Nurses and in Medical Classes. By C. B. BURR, M.D. Second Edition, Thoroughly Revised.  $5\frac{1}{2} \times 7\frac{3}{4}$  inches. Pages ix-116. Extra Cloth, \$1.00 net. The F. A. Davis Co., Publishers, 1914-16 Cherry Street, Philadelphia.

No one can undertake the study of a diseased mind without understanding the workings of the normal mind. However desirable a college education, with its study of psychology is, not every young man can have it. And it is for those who later study medicine that this volume is intended. Mental diseases form an important branch of medicine and this little book furnishes an excellent introduction to their study. The style is simple yet definite.

indicated in the title. Our new possessions, requiring closer contact both in trade and through garrisons coming and going, require that every physician be well posted on Yellow Fever. No authority is better than that of these experts.

The third is a supplement to the second, and presents the pathological evidence which modern medicine always demands.

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THE DAUGHTER: Her Health, Education and Wedlock. By WILLIAM M. CAPP, M.D. Published by the F. A. Davis Company, 1914 Cherry Street, Philadelphia, Pa.

We are glad to add our word of commendation to this book of homely suggestions to mothers and daughters, embracing the periods of childhood, maidenhood, wifehood and motherhood. As it is several years since it first appeared, others have already said what we would. Far too frequently a girl's education is very defective in matters which vitally concern her health and happiness. The physician who recommends this book or studies it himself will be sure of getting a satisfactory statement of the great truths of life, as well as many useful suggestions as to manner of living, etc.

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MEDICAL CONSULTATION BOOK. By G. P. HACHENBERG, M.D., Austin, Texas. Published by the author, 1893. Price \$5.00, express prepaid.

This large volume of more than 750 pages professes to be a pharmacological and clinical book of reference, containing the therapeutics of a full list of the officinal and non-officinal articles of the Materia Medica and including an extensive collection of favorite prescriptions from the most reliable authorities of the medical profession. As Surgeon General Sternberg says, "the labor involved in preparing it must have been enormous." The value of the book seems to us to lie largely in the suggestions which may be derived by a glance at the lists of remedies and prescriptions given under the various disease headings. There is also a vast amount of other medical information. Indeed the volume is a sort of medical cyclopedia, to which one may turn when puzzled and be pretty sure to find an idea which will at least temporarily solve the difficulty.

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We are glad to extend the courtesy to Mrs. Sarah J. Rich, 26 Boynton street, Worcester, Mass., whose husband recently died, of mentioning that she has a new Edebohls operating table, left by the doctor, which she desires to sell. The table is 32 inches high, 20 inches wide and 48 inches long, with three polished French glass plates and a separate top plate which gives it a

length of 72 inches for general operation. The table has never been used. Though it cost \$100, Mrs. R. will sell it for \$45. Write to her for further particulars.

### POSTPONEMENT OF THE THIRD PAN-AMERICAN MEDICAL CONGRESS.

International Executive Commission of the Pan-American Medical Congress.

Office of the Secretary, Cincinnati, Nov. 5, 1898.

My Dear Sir:

I have the honor to announce that in April, 1898, I received from Dr. José Manuel de los Rios, Chairman of the Committee on Organization of the Third Pan-American Medical Congress, a request that, in consequence of the then existing rebellion in Venezuela, no definite arrangements be made at that time relative to the meeting of the Congress previously appointed to be held in Caracas in December, 1899.

The following communication relative to the same subject is just at hand:

Caracas, September 25, 1898.

Dr. Charles A. L. Reed, Secretary of the International Executive Commission, Cincinnati, Ohio.

Dear Sir:

After having sent my communication dated April last, I find it to be my duty to notify you that, although the considerations pointed out in it have already ended, our country has been scourged by small-pox which has taken up all our physicians' activities and time, depriving them of going into scientific works. And, as that state of mind of our people and government after such calamities as war and epidemic, would greatly interfere with the good success of our next meeting, I beg leave to tell you, in order you will convey it to the International Executive Committee, that our Government and this Commission would be grateful to have the meeting which was to take place in Caracas in December, 1899, adjourned for one year later. I am, dear doctor,

Yours respectfully,

THE PRESIDENT.

(Signed)

Dr. José Manuel de los Rios.

In accordance with the request of the Government of Venezuela, and of the Committee on Organization, the Third Pan-American Medical Congress is hereby postponed to meet in Caracas in December, 1900.

For the International Executive Commission.

CHARLES A. L. REED, Secretary.

# ANNALS OF GYNECOLOGY AND PEDIATRY

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## ORIGINAL COMMUNICATIONS

### THE RELATION OF DISEASES OF THE FEMALE GENERATIVE ORGANS TO NERVOUS AND MEN- TAL AFFECTIONS.\*

B. SHERWOOD-DUNN, M.D.,

Officier d'Académie; Corresponding Member of the Société Obstétrique  
et Gynécologique de Paris; Member of the Société Clinique des  
Praticiens de France; Massachusetts Medical Society, etc.

I HAVE been much interested of late in various papers written by men of reputation in the department of neurology, bearing upon the subject of the relation of diseases of the female pelvic organs, to nervous and mental affections.

I attended the last meeting of the American Medical Association held at Denver, almost expressly to be present at the joint session of the sections of neurology and gynecology, for the discussion of this subject, which had been arranged for the year previous.

The several distinguished neurologists, appointed to discuss their side of the subject, presented in every instance, able papers, worthy of more than ordinary consideration, because of their united negation of any relation between the nervous system and diseases of the female pelvic organs.

It is much to be regretted that two, of the three gentle-

\*Read before the American Association of Obstetricians and Gynecologists, Pittsburg, Pa., September 20-22, 1898.

men appointed to present the gynecologic side of the discussion, were not present, and therefore this side of the question was but imperfectly presented. Having been called upon unexpectedly and at the last moment, to take the place of my distinguished colleague, Dr. L. S. McMurtry in this discussion, and having neither the time or sources of information at my command, with which to present an argument that would properly set forth and substantiate my views, I have taken this occasion to present them more in detail and support them by statistical information.

My consideration of the subject, will be limited to the great neuroses of neurasthenia and hysteria, and insanity, and in order that I may not be misunderstood as to the premises from which I start, I will say that I am totally opposed to any operative procedure, except where pathologic conditions are demonstrable. I have no confidence in operations upon healthy organs, for the cure of any neurotic condition, and believe that such are now generally condemned by the profession.

One of the distinguished neurologists at Denver stated that, "The disorders of her pelvic organs have no more to do with her nervous and mental diseases, than lesions elsewhere in her body; indeed, they have less to do with her psychoses and neuroses than most of her other organs."

Another in this same discussion declared that, "All idea of curing neurasthenia or hysteria by operations upon the pelvic organs, must be absolutely abandoned." And in another place he says, "The insanities are not due to local organic disease. Facts are rapidly accumulating to show that the insanities are due to disease of the neuron, structural and functional, the result of various poisons circulating in the blood. Surely it would be just as sensible to claim a cure of insanity, by trimming the toe-nails, as to claim a cure by pelvic operations." And this, by one of the leading neurologists in this country.

I look upon the position taken by some of our colleagues in neurology, that there is no relation of cause and effect between the various neuroses and psychoses, and diseases of the female pelvic organs, as being as extreme and condemnatory as would be the advocacy of the removal of normal organs in the female pelvis, for the cure of nervous diseases, by some ill-advised persons calling themselves gynecologists.

In operating upon diseased conditions in the pelvis, we do not expect to remove the symptoms of the neuroses, but only those symptoms properly belonging to the pelvic disease itself. Strange and disappointing as it may be to some of our critics, when these pathologic pelvic conditions are removed or corrected, the nervous system relieved from the source of unceasing irritation, gradually returns to its normal poise, and the patient is cured of her neuroses as well as her pelvic disease.

Our neurologists are proclaiming the same doctrine as did Professor Clifford Allbutt in his Gulstonian lectures before the Royal College of Physicians in 1892 (but from which he has since recanted almost in-toto), that there are a number of uterine and pelvic disorders, which are but the manifestation of neuroses. In point of fact, the statement needs to be made exactly the reverse, and so frequently is this met with in gynecologic practice, that the gynecologist has become expert in their diagnosis and treatment.

We all have passed through that period in which our touch has been educated to diagnose morbid conditions of the uterus and adnexa, and all know how delicate and difficult, and sometimes impossible the task is under varying conditions. If difficult to those who give their attention to it exclusively, how much more must it be to those who attempt it only occasionally.

The fact of the matter is, that disease of the pelvic organs and affections of the nervous system, are so frequently concomitant and interdependent, that the neurologist is, by far, less likely to give due and proper consideration to the pelvic troubles than the gynecologist to the neuroses,—because of his lack of practice and natural repugnance to propose and pursue vaginal examinations upon the patients that come to him, whereas in the routine questions that form the history taken of every important case by the gynecologist, the neurotic and psychotic conditions present themselves and are given the consideration which their importance demands.

The study of, and acquaintance with, the great neuroses and psychoses is forced upon the gynecologist by the very nature of his study and treatment, whereas the patient going to the neurologist, does not expect, and in most cases would refuse a pelvic examination at his hands.

In point of fact, the neurologist sees but a small percentage of the operative cases, and their views on the whole subject, are prejudiced by this exceptional class as well as by their imperfect and limited knowledge of the special department of the diseases of women.

I will venture to say, there is not a prominent gynecologist, but has seen numbers of women having diseased pelvic organs, and with pronounced nervous symptoms, who have come to him after having had the rest cure and various other treatments, and were restored to health by the cure of the pelvic lesions by operation. The position taken by many neurologists toward operations upon the sexual organs of women, is unfortunate for this class of cases, and it is well to remind them, that remarks, prejudicial to operative treatment, act as suggestion upon neurasthenic and hysterical patients, just as surely and detrimentally as does the unwarranted pelvic examination at the hands of the gynecologist.

Dr. Bedford Fenwick has gone over a large number of cases in his Woman's Hospital, in London, case-books with a view of ascertaining the number of cases which complained of symptoms directly associated with their pelvic troubles. Taken as they came, only ten per cent complained of symptoms directly connected with the pelvic organs; the remainder, giving histories of troubles having no apparent connection therewith, and descriptions of which he gives in detail.\*

Nor does it necessarily follow that the pelvic disease shall be gross in character, in order to give rise to local symptoms. As I pointed out in a paper that I presented before this distinguished society at its last meeting, micro-pathological change in the ovary frequently gives rise to more excruciating pain and far-reaching reflex symptoms, than do those of a grosser character which are more easily diagnosed.† McNaughton Jones says,‡ "One of the most desperate cases of dysmenorrhœa I have ever witnessed through the nerve storms at the menstrual period, was completely cured by removal of the ovaries, which presented no evidence of disease further than slight sclerosis with the sago-grain degeneration familiar to us." This condition has now been denominated, selero-micro-cystic degeneration.

\*British Medical Journal, Vol. IX, No. 34, p. 153.

†Transactions of the American Association of Obstetricians and Gynecologists. Vol. X, p. 233.

‡British Gynecological Journal, August, 1893, page 137.

The limits of this paper will not admit of my analyzing in extenso every proposition made, and I think the majority are so unanimously in accord, that we may take it for granted that the uterus and ovaries in their complex and subtle physiological relationship, and especially when functionally or organically diseased, react upon and make manifest their effect on other organic functions, especially those of the nervous system, more quickly than is the case with disease of any of the other viscera, and this view is greatly supported by a consideration of the anatomical connection of those organs with the cerebro-spinal system, through the splanchnic nerves and spinal cord in the sacral and lumbar regions, as well as through the pelvic and hypogastric plexuses of the sympathetic nervous system. It is to this connection that we must look for the reflex phenomena that follows stimulation or irritation of the uterine and ovarian nerves. The accompanying plate from an article by Drs. Pearce and Beyea, shows the nerve distribution and relationship.\*

Hodge has proven that neurasthenia results from a loss of substance of the nucleus and cell protoplasm, expressive of wear and tear, that is the invariable result of fatigue.

His experiments were made upon animals and birds, and were conducted in a manner which left no doubt as to their accuracy. As a result of any continued reflex action, therefore, which denies to the neuron time for recuperation, we have produced a pathological condition which is seen in the shrinkage of the nucleus and cell substance, which robs the neuron of its functional ability to transmit the normal nerve influence, and gives rise to the chronic fatigue symptoms of which all true neurasthenics complain; and these symptoms pertain to every part of the system—muscular, the special senses, mental, digestive, and derangement of the nutritive interchange.

The neurasthenic unit is a nerve force quantity. It may be a quantity in excess of the normal, or a quantity less than the normal. It may be nerve force out of balance, or nerve force delicately poised. It may be perverted nerve force. It may be nerve force overpowered by inhibition, or it may be controlled by a condition corresponding to a short circuited electric cell, in which all inhibitory power is lost. The protean manifestations of the

\*Annals of Gynecology and Pediatrics, Vol. XI, No. 12, page 865.





must be corrected if the patient is to receive any permanent benefit.

If neurasthenia is the result of a change in the nerve cell, due to too great exercise of its functional activity, then disease of the pelvic organs furnishes the most frequent source of this irritation, and as the primal cause must be corrected if a cure is to be effected.

The rest-cure, tonics, and liberal diet may improve the condition of the neurasthenic suffering from pelvic disorder, but her condition becomes as bad and often worse than before when she is removed from the favorable environment and is again subject to the care and labor of daily life.

During childhood, the body rapidly grows and develops in all its parts, except the generative organs; these remain comparatively quiescent until the age of puberty, when they take on extraordinary activity and seem to strive for development at the expense of all the other forces. Unfortunately, at about this age, our girls become most interested and ambitious in their studies, and it is astonishing to see the amount of work some of them will strive to do.

The hours of continual application, which the less mentally capable among them have to undergo, and the truly heroic efforts they put forth trying to keep pace with those of brighter intellect, are ruinous to physical development.

These are the girls, who, if they do not break down in the effort, accomplish their mental tasks at the expense of the pelvic viscera, and early come into the hands of the physician with infantile organs, neurasthenia, and others of the great neuroses.

No thoughtful mind can reflect upon the nervous relations and requirements of this period of life, and escape the conclusion that the proper development of the organs of reproduction demands full nutrition and plenty of oxygen, best secured by freedom from indoor confinement and taxation of the mind; failure to recognize this, leads in many cases to pubescent disorders, and fastens a neurosis upon the victim.

The poisons of fatigue are generated more rapidly in the girl of eleven to thirteen, than at any other period, as has been shown by Wedensky, the Russian, and Maggiori and Mosso, the Italian chemists. The blood supply is no greater at the pubescent age

than any other, and by some is claimed to be less, yet the demands upon its elements is greater than at any other time of life.

Brain fag in school children at this age, is of common occurrence, and nature is a strict accountant. If she supplies more to one part than she has made provision for, she deducts from something else.\*

In the errors of adolescence, defective growth and consequent disorders of the normal functions of the generative organs, lies the cause of the neuroses, and even insanity in many cases. Dr. Gill Wylie says that imperfect development may result in a hyperesthetic condition of the endometrium, prevent normal atrophic changes, and cause serious reflex nervous disturbances.†

There is no time in a woman's life, from puberty to old age, that we do not have presented before us, the intimate physiological relation between her generative organs, and several nervous systems, and through these, to every organ and part of her body. The acne of adolescence is an example of the influence of these organs upon the skin. The reflex connection between the mammary gland and these organs, during the menstrual period, can only be accounted for through the nervous system. By what other influence are we to account for the malaise, slight nausea, headache, disturbed vision, flashes of heat, constipation or diarrhoea, localized areas of hyperesthesia, and mild forms of hallucination, all of which are sometimes, and in some patients, constantly present during the catamenia; making their appearance with its onset, subsiding and disappearing with its close.

The intimate connection of the cortex with the ovary, is shown by the fact that cortical disease arrests menstruation. These physiological relations, we are intimately acquainted with, and if present, physiologically, I wonder who is going to convince us, that in the presence of pathological changes, the influence of these organs upon the nervous system will not be more pronounced; as for example, the occurrence of various shades of optic neuritis and retinal irritation in connection with suppression or irregularity of the catamenia, slight epileptiform seizure of the facial muscles, laryngeal neuralgia, functional aphonia, tinnitus aurium and vertigo.

\*Annals of Gynecology and Pediatrics, June, 1898, p. 666.

†American Gynecological Transactions, 1891.

As a consequence of menstrual irregularities, we find painful irritation of the dorsal and lumbar spinal zones, functional irregularity of the cardiac rythm, gastralgia, slight icteric attacks, irritation of the bladder with frequent micturition, varieties of headaches, and severe hemicrania. All these symptoms can only be accounted for as reflex vaso-dilating or vaso-contracting phenomena, the result of irritation in the uterus or ovaries, arising from imperfectly performed physiological functions. We have all seen the acute disturbance of the menstrual function as a result of mental or physical shock, cold, heat, or great bodily fatigue. The spasmodic form of dysmenorrhœa, which at one time largely occupied the attention of the profession, and which gave rise to as many forms of treatment, as there were students of its phenomena, was readily explained and controlled after Dujardin-Beaumetz had shown that it was caused by anemic or toxemic blood.

There is perfect truth in the claim of the neurologists that ill health in women is frequently the cause of her uterine troubles; but it is even more true that the various diseases of the uterus and its adnexa, are the exciting cause of the ill health that frequently morbid changes in her central nervous system.

The exact knowledge that we have of the physiological action, compels a belief that these organs form the most prominent links in the chain of woman's health of both mind and body. It is unreasonable and unscientific to style a woman neurotic, hysterical, hypochondriacal, and treat her as such, ignoring the while, local disease of her pelvic viscera, which aggravates and accentuates, and in many instances is the exciting cause of these neuroses; and apart from these direct results, there are those indirect evidences that follow upon interference with the secreting functions of the liver and kidneys, and with the metabolic action of the spleen. I reiterate that it is a blind injustice to deliberately and complacently ignore the influence of local disease as a causative agent of morbid changes in her central nervous system.

It was a strong belief in the relation of menstruation to the functional activity of the mammary epithelium, that persuaded Cheyne to remove the uterine appendages for inoperable cancer of the breast.\* That there is an intimate physiological relationship between these organs, we know, but that its influence

\*W. Watson Cheyne, British Medical Journal, May 7, 1898.

is sufficient to materially affect malignant growth, is exceedingly doubtful.

To the great mass of clinical evidence supporting the close relation of the brain and nervous system to the organs concerned in the genesis of the human race, additional and conclusive proof is found in the physiological development, maintenance and decline of the normal reproductive period of life.

Why, then, in the presence of a neurotic tendency, should there be a doubt as to the evil effect upon the nerve centres when pathological conditions attack these complex and delicately constructed organs, which so often give reflex evidence of their extreme sensitiveness to the action of their physiological functions and constantly show their great influence over the central nervous system? Brown-Séquard has said that the genito-urinary organs are the most closely allied to the central nervous system of any; an opinion which most of us will endorse.

Immediately preceding and during the opening of the catamenia, many women present typical symptoms of nervous exhaustion. Malaise not relieved by rest, dull headache, vertigo, alternating flashes of cold and heat due to vaso-motor weakness; palpitation due to lack of proper nerve coördination; weakened will power, often extending to hysterical outbreaks; nausea, defective vision, and sometimes diarrhœa, or temporary constipation.

Winschild has called these symptoms of nervous exhaustion acute neurasthenia.

In those cases, where there are gross pathological changes, as for instance in those suffering with marked displacement of the uterus, with adhesion, extensive laceration of the perineum and cervix, the latter everted, completely eroded and ulcerated, œdematous and tumified ovaries with multiple fibroid growths in the uterine walls; in the opinion deliberately formed upon a basis of wide experience of the leading operators of the world, prompt and complete operation upon the universally diseased organs, will in some cases promptly restore the patient to health and nervous equilibrium, and save her the expense and loss of time accompanying the rest treatment under the direction of the neurologist which in these cases, is vain, grotesque and reprehensible. On the other hand, picture a case of an American woman, born and reared in the midst of luxurious surroundings, who marries at an age under twenty-two, bears four or five children within a period

of six years; and following the practice and instincts of the majority of American mothers, undertakes to supervise the physical care of her children, not willing to leave them to the mercy and consideration of a hireling, particularly during the night. At about the end of this time, the majority of these mothers become physically and mentally broken. They complain of weariness, nervousness, insomnia, inability to walk any great distance, constant bearing-down feeling in the pelvis, headache, both occipital and frontal, backache, disagreeable dampness of the hands, irritable bladder, hyperæsthesia, points of tenderness in both ovarian regions, dysmenorrhœa, dyspepsia, bad dreams, constipation. With ordinary common sense, she attributes this tableau of symptoms to the strain of the rapidity of her child-bearing, and presents herself to the gynecologist. Upon examination, she has a slight tear in the cervix, slight rectocele and cystocele, relaxation of the ligamentous supports that permits of easy manipulation and displacement of the uterus. Both ovaries are sensitive to examination. This is a practical case for treatment at the hands of the neurologist. There may be those calling themselves gynecologists, who would magnify the importance of the local pelvic condition, and recommend the several plastic operations as a cure-all. But it must be said that they are not representative of the intelligence of this department.

There is no condition under which one could ever say he was operating to cure either hysteria or neurasthenia. We operate only to cure pelvic disease, but often the cure of these neuroses follows.

I will venture to say there is no class of physicians who are more methodical, systematic, or thorough in the examinations of their patients; there is no specialty in which there is a greater mass of statistical records than ours, and this comes from the almost universal habit of keeping the history book; and the market is full of innumerable varieties of them, a proof that they are demanded.

This book provides for family, personal, menstrual, marital, pain, functional, organic and nervous history, going into the history of every organ and the general circumstances, surroundings, and condition of the patient.

\*American Gynecological and Obstetrical Journal, February, 1898.

In an admirable paper from the pen of Dr. J. H. Ethridge,\* he says, "The declaration is hereby made that in a large number of cases in which perineal laceration and the neurasthenic state exist, they may occupy the relation of cause and effect," and follows with cases in detail supporting this declaration.

In a discussion before this society last year, Dr. J. M. Duff detailed a number of cases supporting the ground taken in this paper.\*

Dr. Bantock relates a long experience in the cure of neurotic symptoms by appropriate treatment of the uterus.†

I am quite clear in my mind as to the relation of neurasthenia to many forms of pelvic disease, but not so with hysteria. This disease presents itself under such a variety of forms and with such a bewildering tableau of symptoms, that I should in any and every case hesitate in a diagnosis of cause, and qualify my prognosis as to results in every case of surgical interference. We all have seen cases with gross pelvic lesions and markedly grave hysterical symptoms dating from or after the commencement of the pelvic lesions, and which at first sight seemed the result of pelvic disease, and it is only logical to think that the removal of the evident source of irritation would correct the nervous trouble. Yet the hysterical seizures frequently persist after operation. On the other hand, there are clinical facts which repeat themselves in the writings of every prominent operator that prove that the correction of pelvic pathological conditions, has and does cure hysterical phenomena.

The hysterical state is very largely self-propagated; that is to say, when hysteria causes a yawn or a crying spell, the way is paved for the second yawn or crying spell, to take place much easier than did the first.

When the hysterical state travels in the direction of the involuntary functions, its production is more frequent, hence more damaging. Primarily, this state is always the product of a weakened or non-resisting will, and is, therefore, a pure psychosis.

Hysteria and neurasthenia are often associated together, and when so related are difficult of division; as to just how much of the symptomology is due to one or the other, is difficult to say.

\*Transactions of the American Association of Obstetricians and Gynecologists, Vol. X, p. 218.

†British Gynecological Journal, August, 1893, p. 149.

It can be said that, whereas the symptoms of neurasthenia are seen most evident in the motor system, derangement of normal functions, and general somatic, those of hysteria are more pronouncedly psychical, with emotional outbreaks and loss of will power. When this disease affects the motor system, the evidence is pronounced, as in paralysis, tremor, phantom tumors, etc. But far more common than these, are the symptoms of anæsthesia, and hyperæsthesia; the latter often seen as inframammary tenderness, and what used to be called ovarian neuralgia. My friend, Professor F. X. Dercum, has for a long time shown by ingenious bimanual palpation, that this pain in the majority of hysterics is a superficial inguinal hyperæsthesia.

The cautious care exercised by my celebrated master, Professor Charcot, in approaching every case of hysteria, has given me an exaggerated respect for this disease, and experience has taught me to be exceedingly guarded in my prognosis, as to benefit that may follow operations in its presence.

Unlike neurasthenia, no fixed morphological pathology has been discovered for this affection, and we are totally unacquainted with its etiology. We know that it has a tendency to run in families, and that it is cured by all sorts and manner of treatment.

Professor Charcot had great hopes for the usefulness of hypnotism in its treatment. We know it is most frequently met with in those of a neurotic diathesis, and in consequence, continued nerve irritation from any source is liable to start it into activity.

It is frequently seen in connection with disease of the pelvic organs, yet it often persists after the pelvic disease is cured. On the other hand, pelvic operations have often cured a patient of hysteria, but innumerable other treatments have cured it also.

Dr. S. G. Webber of Boston related a case to me of a woman bed-ridden for six years, who was suddenly cured by self-suggestion, following prayer by her minister. During her confinement she had presented many of the graver manifestations, including paralysis. No stronger evidence of a pure psychosis could be asked than this.

Let us now go to the consideration of insanity. Insanity is an abnormal condition of the mental faculties. It may be due to defective development, acquired disease, or natural decay.

Following out the ideas of Brown-Séquard, Dr. A. T. Hobbs in



a recent paper says:\* "Two theories may be offered why inflammatory disease of the uterus and its adnexa are potent etiological factors in exciting alienation in females: the reflex theory, and the internal secretion theory. The innervation of all the pelvic organs is supplied chiefly by the inferior hypogastric plexus, possibly the most important of all the nerve plexuses, controlling as it does the delicate and complex organic mechanism charged with the reproduction of the human species. The constant irritation of these lower nerve centres incidental to local disease, must react upon the higher centres, begetting in some, the delusional manifestations which determine mental alienation."

In the recent physiological theory of internal secretion, we may find the true solution of the deleterious effects that diseased sexual organs exercise upon the distant nerve centres. Some physiologists claim, "There is a normal and constant contribution of specific material by the reproductive glands to the blood or lymph and then to the whole body."† If the secretion theory is worthy of consideration, and I think it is, and those glands give off elements necessary to the economic equilibrium, it is possible that in the presence of diseased conditions, they may give off vitiated elements that act as toxins and the implantation of pathologic conditions upon these organs must in no usual degree disturb the mental equilibrium, especially in those predisposed to mental weakness.

Jacobs, of Brussels, in conversation with Laphorne Smith of Montreal, said he gave powdered cow's ovaries to his patients suffering the nervous troubles from induced menopause, and that he had cured several cases of insanity with this remedy. This is very strong evidence that the ovaries do secrete elements of the system essential to its equipoise.

Krafft-Ebing divides insanity into two great groups: disorders of the developed brain, and those due to arrest of brain development. The last comprise idiocy and cretinism, which are incurable, and therefore do not enter into this consideration of the subject. The other affections, as melancholia, mania, acute delirium, periodic insanity, moral insanity, hypochondria, hallucinations, hysteria, all belong to the developed brain.

\*American Journal of Obstetrics, August, 1898.

†American Text-Book Physiology, ed. 1896, p. 901, and Annals of Gynecology and Pediatrics, November, 1897, p. 81.

Huxley says that in all intellectual operations, we have to distinguish two sets of successive changes, one in the physical basis of consciousness, and the other in consciousness itself. As it is very necessary to keep up a clear distinction between these two processes, he says, let one be called *neurosis*, and the other *psychosis*. It is in the clear light of this definition that I make use of the word "Psychosis."

As in our consideration of hysteria as a psychosis in which the predisposition may be brought into active manifestation by a multitude of *points départs* from which must not be eliminated diseases of the pelvic organs as an exciting cause, so must these diseases be given due consideration in the etiology and treatment of various forms of insanity; and the clinical facts that are appearing from time to time following the work of the gynecologist upon the insane, are rapidly assuming the proportions of statistics which demand, and cannot fail, of careful and intelligent consideration by both the profession and the laity, the result of which will be that at no distant day, the gynecologist will be a regularly appointed officer attached to all of our asylums.

Dr. A. T. Hobbs, assistant physician to the Ontario Asylum for the Insane, in a recent paper\* states that upon examination of seven hundred and fifty females in the asylum, one-sixth of them were found to be suffering from disease of the pelvic organs.

He gives in detail the surgical treatment of thirty-two cases of general surgery, in none of whom resulted any mental improvement. He then says with reference to the gynecic cases, "The following observations apply to one hundred and ten cases comprising the number operated upon, exclusive of a number of cases too recent to be presented in this report."

It appears that those operations cover a period of over two years. Thirty-six per cent were completely restored mentally, twenty-nine per cent showed an improved mental status. In twenty-nine per cent the mental condition remained stationary, and three per cent died. He gives details of the diseased conditions and operations performed, and in analyzing the results, notes that the improved mental conditions followed the relief of a certain class of utero-ovarian disease of inflammatory origin.

In closing he says: "I must emphatically state, however, that many of those who recovered their reason, would not have done

\*American Journal of Surgery and Gynecology, Vol. XI, No. 1, p. 1.

so without surgical interference. The almost instantaneous restoration of the mental faculties in some, and the steady evolution of the normal cerebral functions in others, cannot but afford incontrovertible evidence in support of the relation of physical cause and mental effect."

Replying to a letter of inquiry, Dr. T. K. Holmes of Chatham, Ontario, writes: "My experience with nervous affections due to pelvic disorders, is gathered from private practice entirely, and embraces thirty-one cases. Twenty-eight were puerperal mania, and three were cases of melancholia.

"Fourteen of the former and three cases of melancholia have been published. A detailed account of the fourteen published could be seen in the Medical Library at Washington, and the three cases of melancholia I send you by this mail. The following will show the chief feature of all the thirty-one cases.

"One case, abscess of ovary, laceration of perineum and of cervix. Ovary removed by abdominal route, and cervix and perineum repaired. Cured of mental and physical ailments.

"One case of vaginitis. Prompt mental recovery, on vagina being cured.

"Twelve cases, lacerated cervix, with subinvolution of uterus and glairy cervical discharge. Eleven cases were cured of mania, and one improved. All restored physically.

"Fourteen cases of lacerated cervix and perineum with varying degrees of subinvolution, endometritis, menorrhagia, and leucorrhœa. Of these, thirteen were cured mentally and physically, and one committed suicide about six weeks after leaving the hospital.

"I have never known a case of puerperal mania, in which examination of the pelvic organs did not reveal some gross lesion, usually laceration of the cervix, and I am certain nearly every case will recover mentally after the lesion is cured.

"I am not a specialist but a general practitioner, and so will not be considered as viewing these cases as an enthusiast might be liable to do."

The three cases of melancholia mentioned were all caused by uterine fibroids and were restored to mental health by their removal.\*

In answer to my request, Dr. T. J. W. Burgess, Superintendent-

\*American Gynecological and Obstetrical Journal, October, 1898.

ent of the Protestant Hospital for the Insane at Montreal, has furnished me with the details of the following three cases:

CASE I.—L. M. Admitted July 26, 1890. Age 20; single. Hysterical mania of over a year's standing. Subject to epileptiform attacks, of which she was known to have as many as thirty in succession. In these she was violent, noisy and destructive.

Examined by Dr. W. Gardner, July 30, 1891, who found intense ovarian irritation on both sides and advised extirpation of ovaries.

Sent to Montreal General Hospital, October 1, 1891. Had two slight fits on November 19, and two, also slight, December 11.

June 10, 1892. Has had no fits during last six months, and was today discharged in excellent bodily and mental health.

Shortly after her discharge, she returned to England, her native land, and a letter from her, dated October 30, 1892, informed me that she had kept quite well up to that date.

CASE II.—E. H. B. Admitted December 29, 1891. Age 34. Married, three children. Attack began fourteen months before, two months after birth of last child (she had had puerperal fever after birth of second child). Became depressed and ran down physically; finally developed into a case of suicidal melancholia.

Examined by Dr. W. Gardner, January 8, 1892, who found endometritis, laceration of perineum and cervix, with probable disease of right ovary.

March 22, removed to hospital for operation, which was successfully performed, right ovary being removed and lacerations of perineum and cervix repaired. Made a good recovery after the operation and at once began to gain both mentally and bodily.

May 1, discharged recovered, and has continued well since.

CASE III.—M. A. C. Admitted June 7, 1894. Age 40. Married, seven children. Mania of over six months' duration, with strong suicidal and homicidal tendencies. Imagined she had an abnormal growth in the uterus which was sure to cause her death. Two previous attacks, one eighteen years before, which lasted a week, and another eight years before, which lasted two months.

Examined by Dr. Alloway, July 3, 1894, who found a retro-

version of uterus, slight endometritis, slight cystocele and rectocele.

Sent to Montreal General Hospital for operation July 17, 1894, which consisted of anterior and posterior colporrhaphy and repairing cervix.

Returned from hospital August 20. August 21, still talks of suicide, but does some sewing; has completely lost her idea of suffering from a tumor since operation. From this time on there was an appreciable though very slow improvement up to December 19, 1895, when she was regarded as well, both bodily and mentally, and accordingly discharged, sixteen months after operation. Has since continued quite well.

Dr. McNaughton Jones presented a paper before the British Gynecological Society, May 11, 1893, treating of uterine reflexes. The position he takes is more radical than I think most of us would endorse, and probably his opinion has been modified since then. But his paper shows that the influence of pelvic disease in the causation of aggravation of insanity is receiving widespread attention.

Dr. Robert Barns, Honorable President of the British Gynecological Society, as long ago as 1893, advocated the appointment of a special medical commission to examine all the female insane confined in public asylums, with a view of correcting any existing disease of the pelvic organs.\*

Although there are some neurologists of note, who are opposed to all gynecic theories of nervous disease, there are others of equal reputation, who consent that they are correlated.

In a discussion at the College of Physicians, Philadelphia, on "The Relation of Nervous Diseases in Women to Pelvic Diseases," Dr. Weir Mitchell said, "Insanities of various types in women occur in which the menstrual period is sometimes the original and sometimes the determinative cause of the mental disease."†

In the same discussion, he reported a case of homicidal mania, one of melancholia, and one of nymphomania at the epochs only, cured by pelvic surgery.

Dr. C. K. Mills admitted that "Neurasthenia in some instances, seems to be directly traceable to pelvic disease."

\*Transactions of the British Gynecological Society, Special Meeting, May 25, 1893.

†University Medical Magazine, Vol. LX, No. 6.

Pursuing this discussion, Dr. J. H. Lloyd said of hysteria, "It is conceivable that it might be started by a diseased ovary, or ovarian tumor, extensive cervical lesion, or lesions of the floor of the pelvis, and in these cases operative interference might favorably affect the hysterical manifestations."

Rohé out of a large asylum experience has said that he believes that many cases of insanity in women are dependent upon pelvic disease, and are cured or benefited by operations.

Dr. Wharton Sinkler believes that the removal of the ovaries for the cure of nervous disorders, leaves the majority of women in a worse condition than before, and my experience agrees with this, for to the original neuroses we have the added symptoms of the premature menopause, and these considerations have led me to be a warm advocate of conservative operations upon the ovary.\* But I think it safe to say, that the day has gone by where healthy ovaries are removed for the relief of any disorder except nymphomania.

No one will deny that frequently cases of both slight and profound nervous disturbance exist, that have no connection with pelvic lesions; and on the other hand, we claim that sometimes the worst cases of nervous disease, have their origin in the long continued and tormenting irritation of some pelvic disease, and that they disappear when the pelvic disease is cured.

Dr. Ernest Hall of Victoria, B. C., furnished me with the details of a patient suffering with suicidal mania, confined three years in an asylum, who was completely restored to mental health after the removal of cystic ovaries and diseased and adherent tubes.†

In the same letter he says the asylum authorities are about to erect a hospital ward with an operating room for the surgical care of the inmates, which is a step in the right direction, and an added evidence that these poor creatures are to be given this additional help to mental recovery.

Dr. John Young Brown in two papers presented before the Kentucky State Society, the first in 1893, and the second in 1894, gives the results of a number of operations upon the insane, with gratifying results in both the physical and mental status of the patients.

\*Annals of Gynecology and Pediatrics, November, 1897.

†The Canadian Practitioner, April, 1898.

The importance of the subject, and the wealth of recent literature bearing upon it, has led me already beyond the limits I originally intended, much as I would like to quote at length the favorable results that have followed the work of Professor George H. Rohé, and Doctors W. P. Manton, W. Gill Wiley, Joseph Price, Greig-Smith, Routh, Baker-Brown. Their experience is published and easily obtained and supports the ground I am defending, viz.: that the removal of pathologic conditions in the pelvis, is frequently followed by the cure of the great neuroses and of insanity in the female.

As a conclusion to my argument I cannot do better than quote in extenso the report of a celebrated case which occupied the public prints at the time and which was presented by the attending physicians at a meeting of the College of Physicians, February 3, 1897, and appeared in the University Medical Magazine for March, page 419.

"The case is one of mental, or rather moral, disorder (kleptomania) in an hysterical woman, the subject of chronic uterine and rectal disease. It is of some interest from the standpoint of medical jurisprudence, as the unfortunate patient was proceeded against legally in England, and having by advice of counsel submitted a plea of guilty of larceny, received a severe sentence of imprisonment; being liberated, however, through the interference of the Home Secretary, upon the medical testimony submitted. Her husband being an American citizen of high reputation, the good offices of the American Embassy were used in her behalf, and the case at the time excited considerable attention in the public prints.

Upon Mrs. C's liberation, husband and wife sailed for home, and, before proceeding to the western city in which they reside, came to Philadelphia for the purpose of consulting Dr. L. W. Steinbach, who saw the patient for the first time on November 29, two days after she had landed from England. The next day he made a careful examination.

He found that the uterus was hypertrophied to one and a half times its normal size; the mucous membrane was irregularly roughened and bled on the slightest touch by the sound. The cervix had a bilateral laceration, more extensive on the left side. The tear was well cicatrized. The rectum was found to be fissured below, ulcerated above. There were evidences of former

ulcers that had cicatrized, and several large turgescient arterio-venous varicosities (hemorrhoids) which bled freely. Dr. Steinbach advised removal of the patient to the Polyclinic Hospital, where, after preparatory treatment for a few days, the patient was anesthetized with ether, the sphincter ani dilated, the fissures cauterized with a Paquelin thermo-cautery, the ulcers treated likewise, and the hemorrhoids clamped and cauterized.

The uterus was curetted and trachelorrhaphy performed by denudation of the cicatricial tissue and suturing with silkworm gut. The patient subsequent to the operation complained of discomfort to a greater extent than is usual with those undergoing similar treatment. The temperature remained normal throughout convalescence.

Before operation and subsequently, upon various examinations by Drs. Weir Mitchell and Solis-Cohen in consultation with Dr. Steinbach, a history was gradually obtained substantially and succinctly as follows:

The patient is 34 years of age, and has been married eleven years. She has had one child, 10 years old, and no other pregnancy. During pregnancy, she suffered much from hemorrhoids, and was operated upon, and since then has been subject to prolapse of the rectum, at times causing much distress.

Previous to fifteen months ago she had suffered little from dysmenorrhea. The menstrual flow was excessive, but otherwise normal. She had never been accustomed to rest during menstruation, although she would often faint on going into a hot room or being excited at this time. About fifteen months ago, following a wetting during menstruation, the flow ceased, and the patient was confined to bed for some days with headaches and feverish symptoms. Since then there has been no real menstrual flow; there was more or less offensive discharge at irregular times, and after two or three months a slight wetting of the diaper at what should have been the menstrual period. For some days preceding this there was considerable pain in the back and abdomen, the patient showed great nervous irritability and excitement, and the tendency to headache and to fainting became exaggerated. The patient was at times subject to palpitation of the heart.

Inquiry into the patient's mode of life, showed she had been "ever on the go," her day being one of excitement rather than mental occupation. She had always been fond of social pleasures



and of shopping, but her husband, though by no means so wealthy as report declares, has been fully able to gratify her in these respects without any necessity for her to resort to larceny.

In person, Mrs. C. is of medium height, somewhat fleshy, but of good form, the skin is fair and smooth, the muscles well developed, though somewhat flabby. The cheeks are constantly flushed, the left face is moved less than the right, this difference being easily observed; the eyes are roving and restless. In London (the husband states) she heard voices and would go to the door to listen. Later these were also heard at night. She was born with some foot trouble, walked at five years, and wore irons.

Dr. Solis-Cohen found no disease of the heart or lungs, although the second sound of the heart was somewhat accentuated, and the patient exhibited the familiar signs of vasomotor instability. Digestion was normal. Nothing pathologic was detected by either of us in the urine. At our request, Dr. D. D. Stewart also carefully examined the urine, with the result of finding it practically a typically normal fluid; the quantity which had been scanty just after the operation having increased at the time of our examination to 1,200 cubic centimetres in twenty-four hours during rest.

Concerning the offence for which the patient was prosecuted in England, it is unnecessary to enter into details further than to say that through sending to a shop to be matched, an article which had been abstracted from that very place, and to which the price mark remained attached, suspicion was aroused, and various articles, some of value, some of no value, and many for which she could have no possible use (including a toasting iron, some common towels, and plated spoons marked with the name of a hotel on the continent,) were found in the patient's trunk. She was, therefore, arrested and brought to trial, with the result stated.

The husband consulted Dr. G. H. Savage, Dr. M. L. Gabriel and Dr. W. C. Grigg, who united in the opinion that she was mentally and morally irresponsible for the offence, and that the exciting cause of her mental unbalancing, was uterine disease with aggravation from the condition of the rectum. Dr. Savage concludes his opinion by saying, "I am used to seeing cases of so-called kleptomania. They are not uncommon among people, more particularly women, belonging to the upper and middle

classes. *They are commonly met with in women who have some uterine trouble, which might lead to hysteria or allied nervous troubles.* The characteristics of the disorders are chiefly seen in the unreasonable nature of the acts, things of various value and interest being taken, and the risk of detection run being out of all proportion to the value of the goods taken. I do not think that Mrs. C. had reasonable knowledge of the acts of which she was accused, and I believe she would suffer seriously from detention in a prison or asylum. She is of the class to which kleptomaniacs belong, and one must not expect to find other signs of insanity in her."

Dr. Gabriel testified that he had seen the patient some six months previously, shortly after her arrival in England; that she was then suffering from frequent attacks of headache and irregularity and scantiness of the menstrual flow; that she was extremely neurotic, and that he had then advised rest and freedom from excitement.

Dr. Grigg's opinion was substantially the same as those quoted above. He likewise says, "I should mention that on the 3rd of November, when I last saw Mrs. C., her monthly period had commenced. This would point to the fact that, at the time she took the articles charged in the indictments, she must have been going through her monthly period, at which time her illness would be most likely to cause mental disturbance." In a letter to Dr. Steinbach, he describes the uterine conditions as follows: "The fundus is extremely tender; by conjoint examination, the cervix and body as far as one can reach, under these circumstances, very hard (a tear on the left side of the os), indicating to my mind some previous inflammation of these organs.

"The uterine sound passes four and a quarter inches, the fundus of the uterus is irregular, and in some parts rough and nodular. It is very sensitive to the touch, producing considerable pain, which continues for many hours. There is slight hemorrhage, although great care was taken in making the exploration. She has also a constant offensive discharge. She will inform you that for the last twelve months, in consequence of severe wetting during menstruation, she has had a very slight loss at these times. I saw the diapers and verify to the truth of these statements. As she could not remain in England for treatment, I have advised Mr. C. to consult you."

In his testimony submitted to the Home Secretary, he adds, "She is intensely neurotic. *The condition of things—a disease of the upper portion of the uterus—is a very common accompaniment of various forms of mania in women, such as melancholia, religious mania, nymphomania, and I have seen it in several cases of kleptomania.* It is invariably coupled with much mental disturbance. The condition I discovered is quite sufficient to account for any form of mental vagaries which are so well known to affect a certain class of women (neurotic) with disordered menstruation. Her bowel condition would aggravate this."

In explanation of the plea of guilty entered at the trial in England, Mr. C. stated, that it was by advice of counsel, as a successful defence under the plea of kleptomania would have necessitated the immediate commitment of his wife to an asylum for the insane, and the physicians whom he consulted were of the opinion that this would tend to aggravate rather than relieve her mental disorder.

The facts given above are sufficient to show the main points upon which Dr. Mitchell has based his analysis of the mental phenomena of this case, with which it is almost superfluous to state that we are in complete concurrence.

The following extracts are taken from Dr. Mitchell's opinion:

"January 20, 1897.—I have carefully examined Mrs. C., and have considered the papers which bear upon her case. I have also had a long talk with her, her husband, with the physician and surgeon who have had her in more immediate charge, and I have read the report of the English experts; also, I have had the advantage to read the newspaper cuttings, giving the details of the trial, and I have read the Home Secretary's order for her release.

"It is clear to me that Mrs. C. has, for some time, been in the habit of taking objects of no use and of little, or great value. It is known that for these thefts there was no excuse, as she has been reasonably supplied with money for a person in her condition of life.

"I do not believe that Mrs. C. had any clear notion of the nature of her acts, or of their consequence, and I am of opinion that very positive and long-neglected uterine and rectal disease had

much to do with the disorder of mind from which she has suffered, and which is apt to be associated with hysterical conditions.

"Had I been in England at the time of trial, I should not have agreed with the lawyer as to her plea. In my opinion, she should have pleaded insanity, accepted the commitment to an insane asylum for two or three months, and been released therefrom. She is now under a stigma, from which it will be difficult to escape,—that of having pleaded guilty.

"This involves long explanations; the plea of insanity would have involved none.

"I think her hysterical, weak, and unbalanced, but no criminal. It is characteristic of her form of mental disorder that she should show no other obvious signs of insanity than the overwhelming tendency which belongs to her form of monomania."

The surgical treatment of the case has already been described. The medical treatment consisted simply in rest, nourishment, and massage.

The menses appeared on December 10, and ceased four days later, reappearing in due time, and again lasting four days. The flow seemed normal in character and quantity. The patient had left the hospital on December 28, and the course of treatment above outlined, was then continued for some three weeks at the home of her sister.

On January 25, she left Philadelphia for her home, apparently perfectly recovered physically, and with these symptoms of mental improvement that, whereas when first seen, she seemed rather to enjoy the excitement of the doctors' visits and questioning, *pari passu* with her physical improvement there seemed to develop abashment, if not shame; and contrition for the acts was added to the regret for the trouble brought upon her husband, which had previously seemed to be her only cause of grief.

To the purely scientific account of this case and in explanation of our departure from usual reserve, it seems proper to add that this full and frank report of a case easy to identify has been made with the concurrence, and, indeed, at the wish of the patient's husband. Although subjected in both the secular and medical press to harsh, unmerited criticism, he has by our advice refrained, as have we, from stating to the many newspaper men who have sought interviews, the facts that amply justify him, as well as the physicians who testified to the British Home Sec-

retary concerning the patient's condition, and the friends who interested themselves in her and his behalf; and furnished a complete reply to the remarks attributed to the trial justice.

This communication, however, places the material facts upon record in a becoming manner, so that, if necessity should arise, they may be referred to for any proper purpose."

Here is a case which, because of the prominence of the English physicians who had examined and rendered an opinion in it, and because of the unusual publicity and wide-spread interest taken in it by the public, we may reasonably suppose was approached with more than ordinary care and circumspection by the prominent medical men called in Philadelphia, one of whom we recognize as a man of unusual ability, well known in the world of letters as well as a leader, if not the leading mind in his specialty of neurology. All three of the English physicians consulted will be recognized as authorities in their special departments of medicine, and they united in a sworn statement to the English Home Secretary that her mental irresponsibility was directly due to uterine disease, in which opinion the American authorities mentioned agreed.

The language used by Drs. G. H. Savage and W. C. Grigg is particularly important regarding the relation of pelvic disease to nervous and mental disorders and is based upon a wide and varied professional experience. I look upon this case and the testimony it has brought out from the medical attendants, as having the greatest value in support of the position that disease of the female generative organs, is often the direct cause of nervous and mental affections.

Since this paper was written, I have received a reprint from Dr. R. M. Bucke,\* Superintendent of the London Insane Asylum, Ontario, giving details of over one hundred cases operated upon for pelvic disease, with most encouraging results to the mental status of the patients.

Dr. Bucke is neither a surgeon nor a gynecologist, and declares that he writes from a purely scientific point of view, and that his observation compels him to believe that mental recovery in many of the cases was directly attributable to the relief of local disease by surgical intervention. As a result of his observations he says, "You will not fail to notice that these three, the ovary, the

\*American Journal of Insanity, Vol. LV, No. 1, 1898.

endometrium, and the cervix, are the most vital, are indeed the creative organs of the female sexual system, and serious disease or even functional disturbance of them always produce a profound effect upon the woman's mental state."

This paper formed the Annual Address before the American Medico-Psychological Association, at St. Louis, in May, 1898, of which he was president. In a letter which accompanied this reprint, he says, "We go on steadily with the work. Have operated in a good many cases since the date of my paper. Our success continues excellent."

Warren Chambers, 419 Boylston Street, Boston.

## THE GRAVER NERVE DISTURBANCES DUE TO ORGANIC CHANGES IN THE GENITAL ORGANS.\*

WILLIAM H. HUMISTON, M.D.

Associate Professor of Gynecology in the Medical Department of Western Reserve University; Gynecologist-in-chief of St. Vincent's Hospital; Consulting Gynecologist of City Hospital, etc.

I HAVE noticed a great disagreement and much dissension, both in the writings and discussions of the neurologist and the gynecologist when this subject (which I have chosen) has been approached. I also perceive an unusual amount of activity of late on the part of the neurologist to keep open the controversy.

I feel certain that we, as gynecologists, should not fail to make our position clear and tenable.

I am well aware that I can bring nothing new to offer you, either in the etiology or pathology, or symptomatology of these disturbances of the nervous system, which are commonly called neurasthenia and hysteria, and are described by the neurologists as fatigue and psychic neuroses.

In looking over the literature one must take care lest he hopelessly flounders in the mass of arguments, pro and con, in the defense of some pet theory, urging a particular pathologic condition

\*Read at meeting of American Association of Obstetricians and Gynecologists, Pittsburg, Pa., September 20-22, 1898.

of a particular organ as the *sine qua non* in the establishment of the etiologic factor.

Innumerable cases are reported by the gynecologist to make his peculiar position defensible—innumerable cases are reported by the neurologist to make the former's position untenable.

I do not attempt to exculpate those specialists of the past who allowed their enthusiasm to overcome their reason. I do defend those of the day who relieve the unfortunate neurotics by the removal of *diseased* pelvic organs.

I do not believe there is one member of this society who would assert that he can cure a mental *disease* or a nervous *disease* by any surgical operation, by the ablation of either a normal or a pathologic organ. I do not believe there is a gynecologist today who would attempt the cure of a mental *disease*, or a nervous *disease*, or a mental or nervous *functional disorder* by the removal of a normal healthy organ.

There is no argument in the statement that "it would be just as sensible to claim a cure by trimming the toe-nails as to claim a cure from pelvic operation." It even fails in sarcasm because of its lack of analogy and faulty logic.

I have only to remind you of the existence of the great sympathetic nervous system to show the lack of similarity.

H. C. Wood calls neurasthenia a "nervous weakness—an habitual foundation for hysteria, chorea, insanity, and various nervous diseases." Furthermore he says, "The onset is always gradual, although at times the condition appears to develop with great suddenness. Under these circumstances, however, the explosion has been preceded by a long train of more or less overlooked phenomena. Hyperesthesia and anæsthesia mark the line where simple neurasthenia passes into hysteria." Also, "Nervous exhaustion may in the beginning affect the whole of the nervous system, or it may be at first purely local and coexist with general nervous strength."

"In cases of nervous exhaustion, the efforts of the diagnostician are chiefly directed to determining the cause of the exhaustion. In a very considerable proportion of cases which have been sent to me as suffering from simple neurasthenia, chronic malaria, chronic diarrhoea, Bright's disease, or other organic affections have existed."

This quotation summarizes all that I found in the literature,

and states concisely my own opinion gathered from an experience of years of hard work in the practice of general medicine, supplemented by my labor in this special field.

Can an ocular defect bring about a general nervous exhaustion? Can a chronic malaria, a chronic diarrhoea, a Bright's disease, or any other organic affection cause neurasthenia?

Dare we question so high an authority as Dr. H. C. Wood?

And lastly, why cannot a chronic organic affection of the uterus or its appendages cause nervous weakness?

Recall the fact that not so many years ago physiologists were almost ready to believe that there must exist highly specialized nerve centres, or ganglia within the uterine muscles (as in the heart) in order to account for the rhythmic contractions of the organ during labor. Also the fact that parturition cannot be merely a reflex act because the pains have ceased through mental perturbation. There does exist one of the closest relations between these organs in the pelvis and the brain and cord.

Is it not as reasonable to suppose a chronic affection of the uterus may cause neurasthenia, as well as a chronic malaria? And can you not bring innumerable cases to bear witness to the fact?

Can we then accept the neurologist's statement that all idea of operations upon the pelvic organs must be absolutely abandoned?

What is the history obtained by the gynecologist in those patients to whom he suggests operation?

A dysmenorrhœa of long standing, and becoming more severe and less patiently borne—the nervous symptoms aggravated at each menstrual epoch, and a markedly close *synchronical* relation between the great general explosive nerve seizures and menstruation. Are such cases without a co-relation?

My experience has taught me to give with assurance a prognosis favorable to such a case following the correction of the pelvic difficulty.

Does the dermatologist refuse to use mercury and the iodides in the manifold manifestations of eruptive skin disorders due to syphilitic infection because the specific remedy fails when the eruption is not dependent upon the aforesaid infection?

Shall we abandon operative measures for the relief of functional nerve disorders when an unquestionable co-relation exists between such disorders and organic pelvic disease, because an operation has, and does, fail to cure a nerve lesion?



In the last five years of my work I have never operated upon a case in which the co-relation between the diseased pelvic organs and the nerve symptoms were not clearly defined, before an opinion from a neurologist relieved me of a doubt of a nerve or brain lesion—with one exception.

This case had been confined for a number of months in an Institution for the Insane. She was thirty-two years of age, had given birth to two children, and well up to the time of the birth of the second child. She left her bed after this second labor before the end of a week, and cared for her household. Shortly she began to be morose and melancholy, and at times violent—attempting to destroy not only her own life, but her two children also. Her general health was good, but on examining the pelvic organs I found the cervix at the *introitus vaginae* lacerated and cystic—the uterus very large and retroverted, with prolapse, enlarged, and tender ovaries.

I had her removed to my private hospital. After the usual preparation I curetted the uterus, repaired the laceration, and supported the uterus with a pessary.

She showed evident signs of improvement within a very short time, and on the second day following the operation said that the sense of pressure and peculiar feeling she had had in the occipital region had disappeared. One year and a half afterward we learned that she was in perfect health—bodily and mentally—and had increased forty-five pounds in weight.

CASE II.—*Melancholia*.—Mrs. B. was approaching the menopause. She was troubled with all the symptoms accompanying endometritis, with retroflexion of the uterus. Upon close questioning and examination by a neurologist, no evidence could be obtained to attribute the deep melancholic condition into which she had gradually fallen.

The correction of the local condition shortly restored her to her normal plane.

CASE III.—*Neurasthenia*.—Miss S. was cared for in Philadelphia by an eminent neurologist for simple neurasthenia. Every known art was tried to relieve her condition. After a number of months of fruitless work an obstetrician and gynecologist of that city was asked to see the case. He advised against *any* operative interference.

Six months afterwards she came to my hospital. I found an

enlarged, sharply retroflexed uterus, but no disease of the appendages. The uterus was curetted and held in the normal position by a pessary. She quickly responded to the treatment, and declared herself unusually well in a short time. She has remained under my observation during the past three years, and I know that she is perfectly well.

CASE IV.—*Insanity*.—Miss H., aged 20, gave history of severe dysmenorrhœa for the last four years. For eight months prior to the time I was called to see her she had been kept under close surveillance because of several attempts at suicide having been made. Upon examination I found an enlarged retroverted uterus, and prolapsed sclero-cystic ovaries three times the normal size. I curetted the uterus, removed the diseased appendages and suspended the uterus. Her recovery was rapid and complete.

CASE V.—*Hystero-epilepsy*.—Miss G. first menstruated at the age of fourteen. Two years later was injured by falling from a horse. Her next menstruation was accompanied by severe pain. This increased month by month until she became a nervous wreck.

There developed in this case one of the most severe forms of hystero-epilepsy I have ever seen. She was under the care of several neurologists, and in several private sanitariums for a number of years, but was finally turned over to my care.

The examination showed a retro-displaced and adherent uterus with the appendages imbedded in a large inflammatory exudate. I removed the appendages and suspended the uterus.

Her improvement was very marked after the first two weeks. She gained from 70 to 112 pounds in a few months, and is now the picture of perfect health.

CASE VI.—*Hysteria*.—B. L., aged 18, had first menstruated at the age of 14—each period being accompanied by severe and prolonged pain. When 17 years old she began to show evidences of neurasthenia, which general treatment could not remedy. This condition rapidly developed into one of the major forms of hysteria.

I examined under anæsthesia, and found a sharply anteflexed retroverted uterus. The cervical canal was enlarged and filled with a purulent discharge, and a large surface of the cervix was eroded, and the vaults of the vagina denuded. Both ovaries were palpable, but the left was a little enlarged and rounded.

I curetted the uterus and kept it well forward by tamponading the vagina with gauze.

She steadily improved in her physical and mental condition, and was dismissed in two months. She gained thirty pounds in an incredibly short time, and had no recurrence of the hysterical seizures, but she was still a neurasthenic. She returned to me a year afterward. I found the uterus in good condition, but the ovary appreciably larger. I advised its removal. The family would not consent.

It is nearly three years now since I first saw her. She still has painful menstruations, and is still a neurasthenic.

This case aptly shows the natural development of hysteria, based upon neurasthenia. With the relief of the acute inflammatory action the hysterical symptoms disappeared, but the slowly progressing chronic ovaritis prevents the patient from gaining her normal nervous tone.

I could multiply these cases many times from my records, but I have already said enough to warrant my proposing that we make some effort to secure for the women confined in our country and state institutions for the insane, such surgical measures which will, I know, in quite a proportion, be a curative means for their mental ailment, and which must in a vastly greater proportion at least improve their condition, both mentally and physically.

122 Euclid Avenue, Cleveland, Ohio.

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DISCUSSION OF PAPERS BY B. SHERWOOD-DUNN, M.D., AND  
WILLIAM H. HUMISTON, M.D.

DR. W. E. B. DAVIS, of Birmingham, Ala.: Mr. President.— I think that this country which has been foremost in many good things, and particularly the Southern part of it, was also the cause of much harm in the enthusiasm of surgical procedures for the relief of nervous troubles. You will remember the late Dr. Batty, who was unquestionably the father of pelvic surgery. He did all of his operations without any knowledge or conception of the pathological condition to be relieved. In other words, he operated for symptoms. He repeatedly stated that he removed the ovaries in cases in which he felt he could not relieve by other treatment. The operation was frequently done in cases where there was no apparent disease with bad results, consequently the

neurologists became prejudiced against surgical procedures for the relief of pelvic trouble. No doubt the teachings of Dr. Batty have led largely to the prejudice that is manifested now by neurologists. Of course, Dr. Batty and his followers were misled in many cases. We know how hysterical women may sometimes be operated upon and be relieved, it makes no difference what the operation may be. An operation on this class of patients seems to relieve for a time, whether anything is accomplished physically or not. In our State, Dr. Batty operated on a number of cases at the Institution for the Insane. In some of them he operated without any conception of the pathological conditions, and not for the relief of pathological trouble, and this point has been lost sight of by neurologists. Yet I believe there are a few cases in which great good has been done by Dr. Batty where no pathological trouble was found. As gynecologists, we know that we accomplish the most good in those nervous cases where we find marked pathological conditions. The more disease we are compelled to remove, the sooner the patient gets well, and the less the disease and the greater amount of nervous trouble, the slower is the case to recover. Neurologists expect too much in old cases of pelvic trouble that have progressed perhaps for fifteen or twenty years. Of course, if these patients do not get relief at once, the operation is put down as a failure. We might just as well expect a man who has had financial reverses, or who has been losing a large fortune for fifteen years, to have his nervous system restored by the restoration of his money. We know the nervous system does not recover so quickly. Unquestionably in cases where we find marked neuroses, they are instances in which the women have a predisposition to nervous and mental troubles, as has been pointed out by the neurologist, and no doubt he is right about it. Diseased pelvic organs should be removed because they have such a marked effect upon both the mind and nervous system.

DR. LEWIS S. McMURTRY, of Louisville, Ky.—There is no subject that can come before the profession that needs as thorough a ventilation and as clear an understanding as this. There is a great misunderstanding existing between the gynecologists and the neurologists about these matters, and there is a total lack of uniformity among gynecologists as to the relations that exist

and as to what can be obtained by surgery in the treatment of neuroses in women. We do not doubt the observations that one another make when they are brought here, but we must discuss the conclusions that are drawn from certain observations. We will have reports of cases made to us of where a woman has melancholia, such as Dr. Humiston reported this morning, in which after an endometritis is relieved and a displaced uterus corrected a cure is effected. Now, I do not doubt the accuracy of Dr. Humiston's observations in regard to these cases, but I do doubt very much the conclusions that he draws from such a case. Let me illustrate what I mean. We may have a woman with endometritis and slight displacement of the uterus, and a little cystic or slightly prolapsed ovary. Those symptoms we frequently see in women. We may find those conditions in a large number of women who may not complain about their pelvic organs, who have never requested that they be treated, and yet upon investigation we will find those conditions. Take a case of that kind, have her taken to a private hospital, as Dr. Humiston did one of his patients, and treat her with the utmost kindness and gentleness, and give her the services of a skilled physician who commands respect and confidence, take her from home, from the conflicts that sometimes take place between brothers and sisters, parents and sisters, or between a wife and a brutal husband, and make the woman feel that she has something to live for, and she will begin to improve. If, along with this, the endometritis be relieved, and the slightly displaced uterus be corrected, a cure will doubtless be effected. There is a large scope here for errors in conclusions. I have had my full share of dealing with this class of cases, and the very able exposition of the subject by Drs. Dunn and Humiston, and the remarks of Dr. Davis, are all in the right direction. The pelvic organs of women are connected through the nervous system with the nerve centres in such a way as to exert a very potent influence on the disorders of the nervous system. I think neurologists are coming to the conclusion very rapidly that when we have an obscure neurosis in a woman, the pelvic organs should be examined just like the eyes are examined, and if there is a focus of irritation found, it should be corrected just as much so as eye strain should be corrected. If there is any lesion that needs attention, it should restorative it. All of our insane asylums have a large number of

women in them who might recover but for the little straw that breaks the camel's back all the time; that is to say, they are in a condition to get well, provided they are relieved of sources of irritation, namely, some trouble with the pelvic organs that is constantly irritating the nervous system. We can say the same thing with reference to fissure of the anus. It is a constant source of reflex disturbance from a peripheral focus; yet it is a very different thing from coming down to general statements that operations upon the pelvic organs will cure insanity and other severe and formidable neurotic diseases. I think much discredit has been cast upon gynecology by ablation of the uterine appendages, because at the menstrual period on account of dysmenorrhea neurotic disturbances are aggravated. By ablation of the uterine appendages we precipitate all of the explosive neurotic effects of the menopause upon a woman in this exquisitely sensitive nervous condition, and it has been a great discredit to our art. You will find a number of these cases in almost every community, and I take occasion to remark here that *specialists are not the ones that are doing this work. It is the general surgeon.* Doubtless ablation of the appendages is done for a neurosis that has nothing more to do with the pelvic organs than it has with the eyes, or any functional disturbance of the organism, hence the point we come to in the papers of Drs. Dunn and Humiston leads us in the right direction, namely, that we should operate for lesions only. It requires great discretion in the selection of appropriate cases to be treated. It is really painful to me to have come into my office one of these cases that I can recognize in a few minutes. Functional neuroses in the lower class of people are very common. The physician who assumes such cases has great responsibility, as well as an enormous amount of labor in inaugurating a system of education to get patients out of this condition. It is necessary to have nurses who are companionable for these women and capable of making life worth living, creating a healthy atmosphere, inspiring them with healthy ideas about life, and doing everything to build such women up together with other remedial measures. A great many of these cases are not suitable for surgery, and whenever surgery is resorted to, in cases where there is only a slight departure from the normal condition, such as endometritis and menstrual disorders, which may be the cause of the nervous disorder, it is a mistake.

DR. CHARLES A. L. REED, of Cincinnati.—Inasmuch as I have been identified with this branch of our scientific polemics, I feel that I want to say something on the excellent paper that has been prepared and presented in such a scholarly manner by Dr. Dunn. I trust that Dr. Dunn will experience more pleasant results from the publication of this contribution than did I, when some nine or ten years ago I reviewed this subject in somewhat direct terms in an address before the Erie County Medical Society of Buffalo. I do not recall a contribution that seemed to excite so much animosity on behalf of asylum superintendents, and from whom there emanated a general chorus of protests and abuse. From comparatively few quarters did I receive words of encouragement and of commendation; but shortly after that one of our distinguished colleagues took charge of an asylum and, recognizing the truth of what I had said, he exemplified it in a conclusive manner in the work of the institution over which he presided. I allude to Dr. George H. Rohé, then in charge of the Maryland Hospital for the Insane. If anything were needed to make the case conclusive, that deficiency has been supplied by the essayist this morning and supplemented in turn by my distinguished friend and neighbor, Dr. Humiston of Cleveland. The conviction that there is an etiologic relationship between organic disease within the pelvis and general functional neurotic disturbances is laid in the deepest possible appreciation of the truth in both physiology and pathology. Nothing is more conclusively demonstrated today, and it were useless in this presence and at this juncture to trace the morbid influences as they traverse the nervous system from the central telegraphic office to the remotest nooks and crannies of the system. It were simply futile to trace these influences at this juncture of the discussion. Let each of us go from this Assembly Hall imbued with the conviction that duty calls us in this direction and not cease the contest until results are realized, and in every institution used for the incarceration of the insane let us see that there shall be that intelligent administration of the necessities of those unfortunates that shall result in their greatest welfare.

DR. JOHN M. DUFF, of Pittsburg.—This is a very important subject. Dr. Reed several years ago brought up the subject before one of the Ohio Medical Societies. Dr. Rohé's work demon-

strated the possibilities in the direction in which he was working, and which Dr. Reed had previously spoken of. In 1893, in my address before the Section of Obstetrics and Diseases of Women of the American Medical Association, I referred to the possibilities in this direction in connection with out insane asylums. But there needs to be great care exercised when we utter words such as those that have been uttered by Dr. Reed with reference to the work in our insane asylums. As I said last year in regard to Dr. Dunn's remarks, I believed his statements were very accurate and scientific, but in at least half a dozen cases that have come under my observation this year I have been refused operation, because Dr. Dunn was understood to say that a woman could not have her ovaries removed without affecting her mental condition. This is dangerous ground to tread upon, and we must consider it carefully before we endeavor to influence those in charge of our asylums that there shall be a wholesale castration of inmates for the relief of mental disturbance. Just how we are going to do this work in a proper manner is very difficult to understand. When we, as an Association, say that our asylums should be entered by men who are adepts in diagnosis, prognosis, and operative measures. If we open the gates and allow every man who thinks he can remove an ovary to do so, we will have very disastrous results. We see this in practice daily outside of the asylums.

I expected to have had a woman here this morning upon whom I operated about eleven months ago. She was brought from an insane asylum. Her family came to the conclusion that they would bring her home and try to care for her. She had suicidal mania at the time she was brought to my office, so that it took three persons to bring her to the office. On examination I found the uterus retroverted, an ovary enlarged. I removed her ovary and fixed her uterus. This woman went home at the end of four weeks, took charge of the house, her sisters being employed in stores in the city, and she has been keeping house for them ever since. For months she has come to my office regularly once or twice a month, and she expresses herself as being in the best of health, and appeared before the class at the College.

DR. D. TODD GILLIAM, of Columbus.—I think we have struck the right chord in this meeting with reference to the relationship



existing between neurology and gynecology. The craze has gone over the country, having started with Batty's operation, and every gynecologist has operated on the pelvic organs for neurotic states, and not only that, some of them promise the patients and their friends that if they remove this or that lesion the patient will be well. This state of affairs does not exist today among the conscientious, the more intelligent and advanced gynecologists. The tenor of the papers today has been of the right order. Dr. Dunn's paper is a magnificent production, one we shall revert to frequently when this subject comes up. It is a scholarly contribution, and I cannot compliment him too much on the labor he has expended upon it.

While Dr. Humiston's paper was conservative, I think he drew deductions from the cases reported with which we cannot entirely agree. We want to place ourselves on record to the effect that the pelvic organs are very important; that there is probably no other set of organs in the system that have so much influence on the nervous system or upon the brain centre as the pelvic organs. This is manifested in slight departures from physiological conditions of the pelvic organs. You will find women who have mental and nervous perturbations at the time of menstruation, showing that there is an intimate relationship existing between these two. Women become irritable during the menstrual period, and this irritability or depression of mind may lead to insanity or to melancholia, so that no one can doubt that there is this relationship. Why should we eschew it in making up the factors of trouble? When a patient comes to me with a confirmed neurosis and a pelvic lesion, I do not promise to cure her of the nervous trouble. Happily in a certain number of cases a cure follows sometimes immediately, sometimes after a considerable interval. But I promise to do the best I can to remove the lesion. I do what I can to help to relieve her physical trouble. If there is something the matter with the eyes, I send her to an oculist; if she has any trouble with the intestinal canal, an effort is made to relieve it. The gynecologist should do his part, and wherever a pathological condition exists, it should be corrected.

DR. J. HENRY CARSTENS, of Detroit.—Dr. Gilliam has struck the keynote. We fail to see that there is any trouble of the

alimentary canal. We fail to see that there is something the matter with the kidneys, which produces a great many more nervous symptoms than we are aware of. We overlook these things, we neglect them, we operate, and the result is failure, and discredit is cast upon gynecology. In all nervous diseases, be very careful about operations. Do not promise patients too much. Have them under the closest observation; look them over carefully from head to toe, over and over again. You may remove a diseased ovary, or correct a displaced uterus, and yet there is something back of this. If you are wise, look at everything, otherwise you will get yourself into trouble all the time.

DR. SHERWOOD-DUNN (closing the discussion on his part).—Dr. Carstens, in his remarks, has dissected the cause of the deprecatory attitude taken by neurologists respecting our practice. We ourselves are entirely to blame for the position that this department of medicine now shows toward us, which heretofore has gone hand in hand with us. Never make a diagnosis until you have examined a patient from the hair of his head to the soles of his feet. This is the universal teaching of those who have been educated in Europe, that diagnoses must be made in a thorough manner. For this purpose they give us books with appropriate headings, and I have brought to this country a book that was furnished me in my gynecological service in Paris, from which I have had duplicates made in English. It starts off with the family history, the personal history of the patient, menstrual history, marital history, accidents due to parturition or other causes, pain, discharge, heart, lungs, appetite, digestion, kidneys, bladder, bowels, nervous system, and last, the most important of all, the general condition of the patient as she appears to you when she comes to your office, or what your impressions about her are.

Dr. Davis spoke of the initiation of this much-to-be depreciated practice of operating upon healthy organs for neurotic conditions. A greater mistake was never made in surgery. There is no doubt about it. Because of it, neurologists are now declaiming against the influence of any operation in the presence of any character of pathological lesion as having absolutely no influence whatever upon the nervous system. Dr. Gilliam in his remarks, mentioned the possibility of our being led into error in promising post-operative results. The last case I examined in

my office the Saturday before starting for this meeting, was a fine, well-nourished, handsome, squarely-built lady of forty years of age, at the head of one of the largest millinery establishments in Boston. She is a woman who manages some twenty or thirty girls. She has built up a business from small beginnings. She is a woman of extraordinary self-poise, self-possession and great ability. She came into my office with her husband, desiring relief from periodical hysterical attacks at the catamenia. I took her history carefully, made an examination, and in making the examination she cautioned me to be careful not to hurt her. She told me that she was exceedingly sensitive of any manipulation of the sexual organs. I introduced my finger lightly into the vault of the vagina and found the left iliac fossa almost completely filled with a fibroid. The moment I touched it she shrank, her muscles contracted, and I asked her if it gave her much pain.

She replied, "It does not pain me, but it sends a shock all over me." She said, "If you did that several times, I would have one of my seizures." Feeling that the territory was too tender, I made a rectal examination, passed my finger lightly up under the tumor as delicately as I could, and when I reached the region of the ovary she had an hysterical seizure, and it was only with the aid of the nurse that we kept her on the table. This woman has a pathological condition of which she is to be relieved. Can I promise that the relief of that condition will cure her hysteria? I certainly cannot. I do not know anything about what the post-operative result will be upon that woman's nervous system in the presence of those pathological conditions. It is self-evident that the existing pathology in her pelvis is the exciting cause of her neurosis, but has that neurosis been sufficiently long established to have become a permanent factor in her system? Will the relief of the pathological condition cure the hysteria? It may, and from the fact that she had an hysterical attack from a most careful examination, would lead us to promise ourselves that when the source of irritation is relieved, she will gradually come back to her nervous balance. Nevertheless, as much as I was tempted to tell this patient that in my judgment the removal of the inflamed adherent fibroid would restore her to proper mental condition, I knew by long experience it was absolutely out of the question and improper for me to do so. I told her she would have hysteria as long as the fibroid was there, but I could not promise to re-

lieve the hysteria by removing the tumor. If we will take a position of that character, the odium that is attached to operative procedures in the presence of psychotic and neurotic conditions will be lifted from our branch of the profession, and we will return to an even field with our neurological brothers and stand upon the same ground.

DR. HUMISTON (closing the discussion).—In answer to Dr. McMurtry, I will say that my paper dealt with the graver forms of nervous disturbances, due to organic pelvic disease. The burden of his talk was upon slight uterine displacements, slight prolapse, which I do not think is applicable to the statements that I have made. I could have reported in my paper today, cases that have occurred in my practice during the last year and a half, but the cases I have detailed antedate that time and have been well during this long interval. That is why I have reported them. In regard to the case he speaks of that was removed to my hospital with pleasant surroundings, taking her out of the asylum, etc., this being an important factor in the cure of the case, I will say that this woman was absolutely despondent. She believed she had lost her soul. She made the remark that "the devil came one morning and split open my skull and removed my soul." She said I could do what I cared to do, but that I would waste my time. This woman made a brilliant recovery after operative interference.

Dr. Dunn has spoken with reference to thorough examination as a necessary preliminary to all of these cases. The gynecologist who immediately investigates the pelvic region without giving attention to the head, the chest, the abdomen and general nervous system, is going to make mistakes frequently. I find many conditions by carefully investigating these cases—a dilated stomach, nephritis, autointoxication, etc. I take the case in its entirety, and when I have corrected those conditions and still have a pathological condition within the pelvis, I offer the patient a strong hope that she will entirely recover from a proper surgical procedure.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### A CASE OF RETROPHARYNGEAL ABSCESS WITH SOME UNUSUAL SYMPTOMS.\*

ALFRED HAND, JR., M.D.,

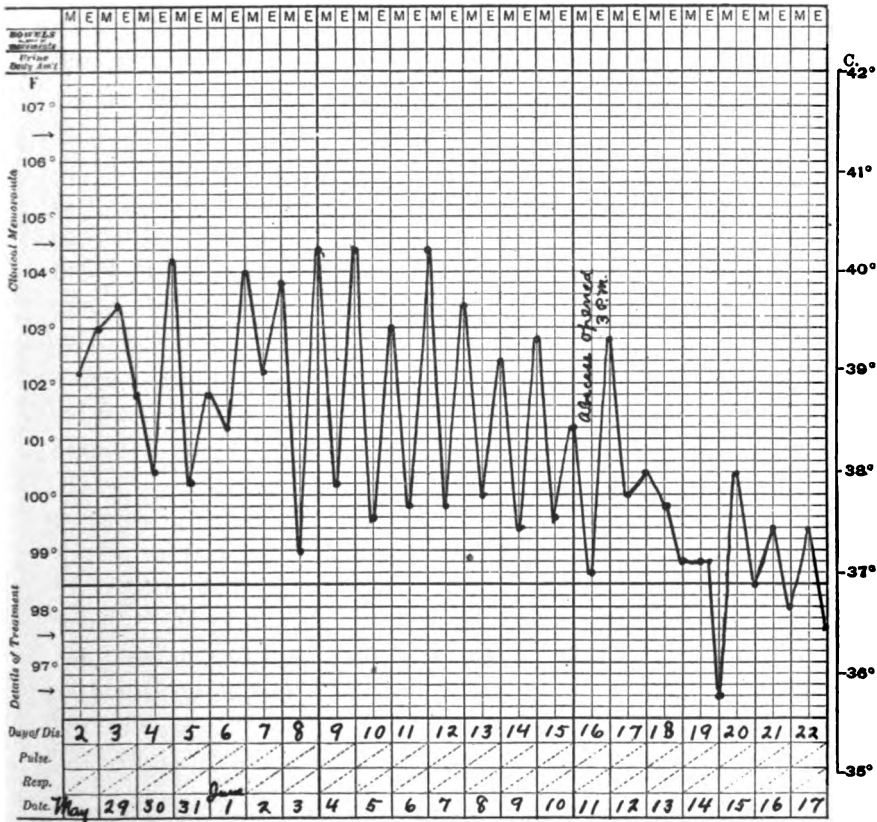
Physician to the Out-Patient Departments of the Children's and Methodist Episcopal Hospitals; Pathologist to the Children's Hospital, Philadelphia.

A BRIEF history of the case which I have to report is as follows:

B. L., 20 months old, of good family history, had never had any acute illness, but he was said to have a rather weak digestive system, being subject at times to looseness of the bowels with the passage of considerable mucus. He was breast-fed for six months after which cow's milk diluted with lime-water and barley-water was used with such success that when I first saw him he was well-nourished, not rachitic in any way, but rather pale from an illness which had begun eight days before, following a rather prolonged airing. The onset was so sudden that the mother said she felt his temperature rising in a very short time while holding him on her lap. The physician who was called prescribed a laxative and a fever-mixture, the latter being taken for several days, until the physician left town for some time, when Dr. Starr was called in, who referred the case to me on the following day. At his visit the tonsils were seen to have a few follicles distended, there was a catarrhal condition of the naso-pharynx, the glands at the angles of the jaw were swollen, more so on the left, there was a marked cough with a few loose râles in the chest, and the bowels were moving four times a day, the movements being watery, greenish and slimy. When I saw him the next day, his con-

\*Read before the Philadelphia Pediatric Society, October 11, 1898.

dition was unchanged except for a marked improvement in the tonsillar condition, the yellow plugs having entirely disappeared. The temperature, which had been  $103.8^{\circ}$  F. the previous evening, had fallen, without any perceived perspiration, to  $99^{\circ}$  in the morning, and continued to follow this course for nine days longer, or fifteen days from the onset, falling to about  $99.5^{\circ}$  in the morning and rising to about  $104^{\circ}$  in the evening. The cervical glands



Philadelphia, J. B. Lippincott Company.

remained swollen, the catarrh of the pharynx persisted, while the râles in the chest were heard in the smaller bronchi and in a few areas were so fine as to be considered pneumonic, but the extent was hardly enough to account for the marked febrile movement. Five days after I first saw him, three varicellar blebs appeared and slowly dried up. The spleen was at no time enlarged, the abdomen could always be freely palpated and the intestinal catarrh

steadily improved. The appetite was fair and he took his milk and other feedings well, the stomach being retentive. The case was of such a nature that a thorough physical examination was imperative at each visit, and after a few days close watch was kept for two conditions especially, empyema and retropharyngeal abscess. The first condition was thought of because of the similarity of the symptoms to those presented by a case later developing empyema, described by Dr. Pepper in a conversation. The second condition was rendered more probable by the striking similarity to a case reported by the writer in the *Archives of Pediatrics*, July, 1895. There was no dysphagia, the breathing and the voice were not altered and there was no wry-neck. The pharynx was palpated several times, but no swelling could be detected until 13 days after the onset, when the left side of the posterior pharyngeal wall began to bulge. For several days following this, a curious phenomenon was observed; after taking a feeding and without any apparent pain in the stomach, the child would retch, wilfully as the nurse thought, until the curdled milk would be regurgitated. (It would seem that the swelling gave rise to a sensation as of something in the pharynx to be swallowed, which not being accomplished, an attempt would be set up reflexly to discharge it through the mouth.) Fluctuation could not be felt in the swelling, which increased so slowly in size that not until after three days was it deemed advisable to incise it. The amount of pus liberated by the incision could not be estimated, as the greater part was swallowed before the child could be inverted. There was extensive induration in the abscess-wall which subsided very gradually, a little thickening still remaining 10 days later when the child was taken to the seashore. As seen by the temperature-chart, the incision of the abscess put an end to the high evening-temperature, the curve then assuming the inverted type. On the third evening the drop was sudden, the temperature falling in two hours from normal to  $96\ 2.5^{\circ}$ , with a cold perspiration and a weak pulse. The usual treatment established reaction in a few hours, but there was a tendency on several successive evenings to a fall in the temperature, which had to be combatted vigorously. From this time on, convalescence was steady and uninterrupted.

While the condition which subsequently developed in the course of the illness was anticipated for several days before it ap-

peared, the descriptions of retro-pharyngeal abscess in the standard text-books did not resemble, in any of the major points, the course of either of the two cases I have seen. The course is described as being short, with symptoms of dysphagia, disturbances of speech and respiration and wry-neck. In both of these cases the illness lasted for nearly two weeks before the abscesses developed, and in neither of them was there disturbance of swallowing, speaking or breathing, further than a slight noise, hardly a snore, but such as is produced by a nasal catarrh. It is possible that the symptoms described in the books occur in cases that are allowed to go on until the abscess would almost empty itself, but the diagnosis can easily be made before such a condition develops.

With a fluctuating temperature and enlargement of the glands at the angle of the jaw, no other lesion being found to account for the temperature, suppuration may be looked for in the lymphatic structures adjacent, either back of the pharynx, or in the external cervical glands themselves, as occurred in an infant seen with Dr. Stout of Wenonah.

211 South Seventeenth Street, Philadelphia.

#### BALUE'S COUGH.

M. Paul Gaston has made a careful study of a form of cough familiar to us all and often treated as he says, *sans résultat*. This cough is peculiar in that it is spasmodic, suggesting whooping cough, often causes vomiting and occurs almost exclusively at night. Dr. Gaston attributes it to a posterior coryza. The child is too young to cough and spit, and hence the discharge from the mucous surfaces, runs back and at night when the child is lying down, drops through the pharynx and into the larynx. A reflex in the region of the aretynoids and vocal cords is excited, and spasm of the glottis ensues. Following this explanation, he suggests treatment by introducing through the nostrils long, narrow plugs of absorbent cotton dipped in borated vaseline, to which may be added tannin, alum, etc., if desired. The child will sneeze at first, but soon becomes accustomed and the coryza is rapidly cured.—(*Journal de clin. et de thorap. enfant.*)

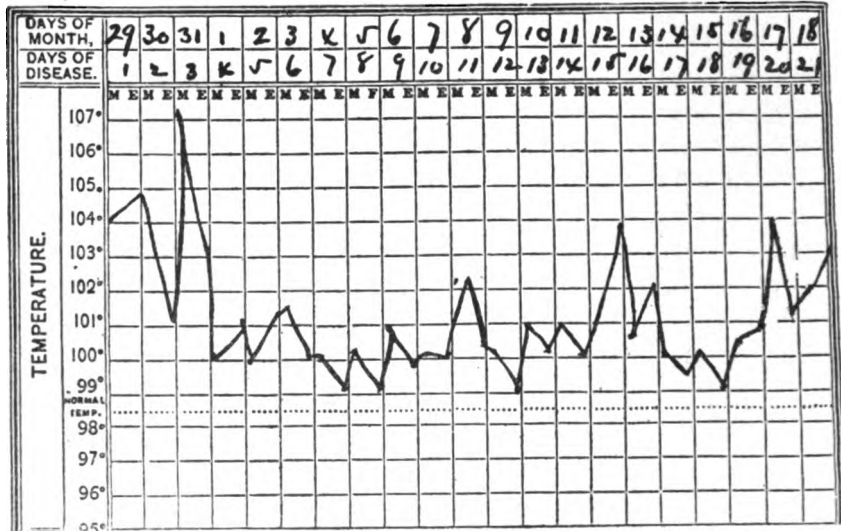


## REPORT OF CASE OF CHOLERA INFANTUM.

Reported by F. W. Sawyer, M.D., Superintendent of Boston Floating Hospital.

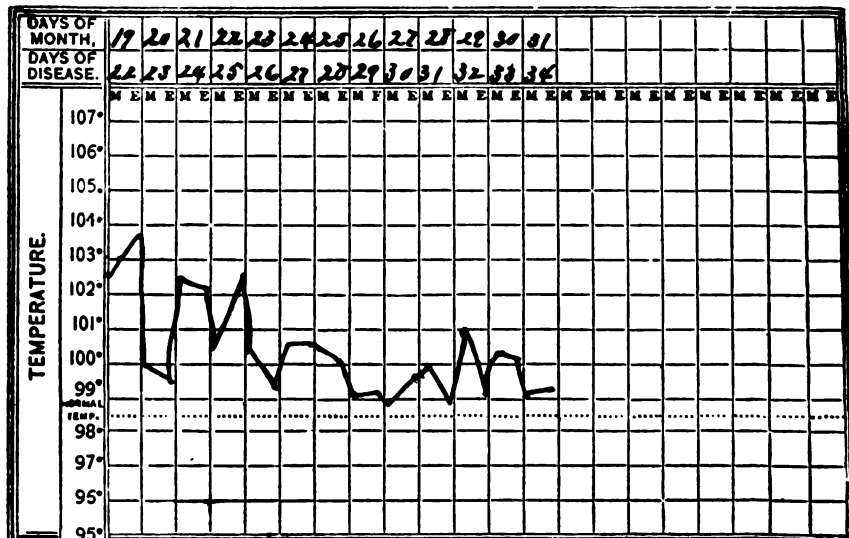
## CLINICAL CHART.

Name, *C. M.* Disease, ..... Date, *7-24-98*



## CLINICAL CHART.

Name, *C. M.* Disease, ..... Date, .....



Services of Drs. Robert W. Hastings and William E. Fay. C. M. Age 9 months. Diagnosis: Cholera infantum. Admitted July 29, 1898. History: Vomiting and diarrhœa for two days; very numerous green watery dejections. Has been fed on barley water since taken sick. Child collapsed when brought on board in hospital. Rectal temperature  $104.^{\circ}4$  F.; extremities blue and cold. Extremely restless and tosses about all the time. Weight 15 lbs., 12 oz.

Diet: Albumen water or wine whey, q.s.

Child was brought in in a very bad state and was at once given stimulants and external heat applied. Became more quiet and extremities got warm. Temperature ran up to  $105^{\circ}$  F., and was given a sponge bath. This gave him some relief and he slept for a few hours.

July 30.—Same food given today:

R. Whiskey, m.x every hour.

R. Calomel, gr. 1-10 to ten doses.

Had five light-green watery dejections. Vomited twice during the night. Temperature ran high, but limbs were so cold that sponge baths were not given until temperature was  $106.^{\circ}8$  F.; then after bath the pulse was weak and limbs very cold and blue.

July 31.—This morning, child had temperature of  $107^{\circ}$  F., and was in a state of collapse. Was given bowel irrigation with normal saline solutions, temperature  $60^{\circ}$ , which reduced the axillary temperature  $3^{\circ}$ , but left him in a worse state than before and caused him to vomit. Eyes were rolled back in the head and pupils widely dilated and crossed. Taking up the theory of Dr. Fitz that the cause of cholera infantum was really hyperthermia, it was suggested that the effect of cold applied to the nervous system as nearly as possible should be tried to see if by stimulating the great nerve centres the control of the heat production in the body might be regained.

A thick compress was applied over the head, and a narrow but thick one down the spine from the occiput to the sacrum.

At first they were saturated with cool water; then the temperature of the water was reduced until it was ice-cold. Brandy m.xv was given every fifteen minutes all day, and wine whey  $\mathfrak{z}$ ss every hour. Under this treatment the temperature came down slowly and at 3 p. m. was  $103.^{\circ}2$  F., and the child went to sleep. Four dejections were recorded during the day, yellowish brown in color.

August 3.—Diet same. Has had a quiet night with one dejection, yellowish green in color. Temperature remained about 100° F. Slept well. Has had two dejections today of same character as last night. Did not seem very well in the morning, but picked up in the afternoon. Weight, 15 pounds, 10 ounces.

August 4.—Diet same. Had a quiet night. One dejection, yellowish green in color, with some mucus in it. Cried considerable. Still doing well but fussed much during the day. Did not have on compresses all day. Had three dejections, yellowish green in color.

August 5.—Diet: Cream, 3½ added to whey feeding. Amount of each feeding increased ⅓ss. Dejections dark green, two in number.

August 6.—Diet: One and one-half ounces of Modified Milk, with the formula:

Fat,	1.00
Sugar,	5.00
Proteids,	0.75
Alkalinity,	5 per cent
Brandy continued.	

Coughed some last night and during the day. Two movements, green with curds. Modified milk cut off for the night and whey given in its place. Temperature 101° F. Slept well all night.

August 8.—Diet continued same. Has two to four dejections a day, green with some mucus. Coughs more. Weight, 15 pounds, 8 ounces.

Physical Examination.—A few dry râles heard beneath the angle of the left scapula. Percussion note normal.

August 10.—Brandy cut down one-half. Temperature ran up to 102° F.

Diet: Two ounces of Modified Milk, with the same formula as above, alternating with one ounce and a half of plain whey, and Brandy, m.x.

Has large yellow dejections. Sleeps well and looks very bright. Temperature 100° F.

August 11.—Diet: Two and one-half ounces of Modified Milk, with the formula:

Fat,	2.00
Sugar,	6.00
Proteids,	1.00

Brandy, m.x every two hours, this increasing materially the amount of food. Weight, 15 pounds,  $\frac{1}{2}$  ounce.

August 12.—Diet:

Cream,	3 $\frac{1}{4}$
Barley Water,	3i
Water,	3i
Lime Water,	3i
Milk Sugar,	3ss

Had a bad time today, looks very badly and temperature is up to 104.° F. Hands and feet cold and child very restless. Has vomited three times today and the order for the food was changed to the above.

August 13.—Grew worse until late in the evening and was collapsed badly.

External heat warmed the extremities, and ice-cold compresses applied to the head and spine brought the temperature down and brought on sleep in a few minutes. Was given Whiskey, m.xv every fifteen minutes for a time. Slept for some time and took stimulants without waking. Cold compresses were taken off for an hour and temperature went up from 100.° 2 to 103° F. Came down under treatment to 101.° 2 F., and he went to sleep again. Vomited three times during the night and had one yellow dejection. Temperature has been about 102° F. today until tonight, when it dropped to 100.° 4 F. at 6 p. m. Has had Whiskey, m.xv every half hour all day.

August 16.—Diet:

Barley Water,	3i
Water,	3ss
Lime Water,	3ii

Alternating with:

Plain Whey,	3i
Albumen Water,	3ss
Whiskey, m.xv every two hours.	

Weight, 14 pounds, 6 ounces.

August 16.—Has not taken his food very well, but dejections are yellow and well digested, two or three a day.

August 18.—Diet same. Calomel, gr. 1-20 to five doses. Has had some green dejections with bad odor. Vomited once yesterday. Temperature went up to 102° F., and ice caps were ap-

plied to head, giving him a chance to sleep. Vomited yellow liquid today. Stomach was well washed out with weak boric acid solution. Took next feeding greedily and has not vomited since. Weight, 14 pounds, 2½ ounces.

Physical Examination.—Lungs still show a few râles at apices of scapulæ. Breathing very clear, however.

August 20.—Diet same. Whiskey, m.xv, every two hours. Had a bad day and temperature went up to 103.°5 F. Cold bath and cold compress to head reduced the temperature, and he slept well all night. Had two green movements yesterday. Today temperature has dropped to 100° F., and he is smiling and playing in his crib tonight.

August 31.—Child has improved considerably; is taking a fair amount of food and digesting it fairly well. Temperature 99° F. Has not vomited for two days. Has gained a few ounces in weight during last four days. As today is the last trip for the season this patient will have to be sent home. If proper care is taken he ought to be entirely well in a few days. Weight, 14 pounds, 7 ounces.

This was one of the most interesting cases during the season. The exceeding high temperature of 107° F., the two severe conditions of collapse, the heroic treatment which brought about the relief, with such a prolonged continuation of the symptoms, make it a case worth while mentioning. Much credit is due the assistant physician for his untiring efforts. Also a just amount of credit must be given one of the nurses who took entire care of the case, remaining on duty without being relieved, for thirty-six hours.

UNDER WHAT CIRCUMSTANCES DO PUSHING  
DOWN PSEUDO-MEMBRANE AND OCCLUSION  
OF THE TUBE TAKE PLACE IN O'DWYER'S  
INTUBATION, AND OF WHAT IMPORTANCE  
ARE THESE COMPLICATIONS?

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*Translated from the German with the special sanction of the author.*

BY

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WHENEVER a comparison between tracheotomy and intubation is made, the adherents of tracheotomy are accustomed to lay special stress on the possibility of pushing down the membranes and of the tube becoming occluded, as a great disadvantage of intubation. My purpose, on this occasion, is to discuss this question, which, from a practical point of view, is of importance, and in trying to throw light thereon, I believe that the results of my efforts will not be without value.

In almost every contribution from the adherents of intubation, since O'Dwyer's procedure has been mentioned in literature, we find the statement that, during intubation, pseudo-membranes may be pushed down and the tube may become occluded by pseudo-membranes. Even the first observers, J. O'Dwyer, Francis Huber and Dillon Brown, called the attention of their American colleagues to this contingency, in the year 1887, in their reports to the "Academy of Medicine" in New York, when they made public the procedure known as intubation. Indeed, this very fact led O'Dwyer at the same time, to urge upon physicians the necessity of being fully prepared to resort to tracheotomy when performing intubation. O'Dwyer's conscientious advice is always faithfully followed by operators, although, as we shall see, the necessity for performing tracheotomy immediately after in-

tubation, rarely occurs. As for myself, even in my first intubations, I made such arrangements in my hospital practice that tracheotomy could be performed at any time in the diphtheria pavilion. Furthermore, whenever intubation is called for in my private practice, I carry with me all the instruments necessary for tracheotomy, and shall not neglect to take that precaution in the future.

As intubators have never denied the possibility of pushing down the membrane during intubation, or of the tube becoming occluded, the question can only be, how often does this complication arise, and of what importance is it? Does it really take place so frequently and is it of so dangerous a nature, that preference in the two operations, belongs by right to tracheotomy?

O'Dwyer,<sup>1</sup> Fr. Huber,<sup>2</sup> Dillon Brown,<sup>3</sup> Waxham,<sup>4</sup> von Ranke,<sup>5</sup> Ganghofner,<sup>6</sup> Baer<sup>7</sup> and McNaughton,<sup>8</sup> all emphasize the fact, that only exceptionally in their experience, has the pushing down or pseudo-membranes taken place. Occlusion of the tube by pseudo-membranes is also but rarely reported by intubators. Von Ranke, the pioneer of intubation in Germany, makes the following statement: "When the tube is introduced, we may, doubtless, be suddenly confronted with danger of suffocation, but according to our observations in Munich, this complication is very rarely encountered. The experience of American physicians also corroborates this fact."

Practice, therefore, has failed to substantiate objections based on theory; indeed experience has undoubtedly shown, that the complications under discussion are only encountered sporadically. And why is the pushing down of pseudo-membranes, during the introduction of O'Dwyer's tube, of so rare occurrence, when if looked upon from a purely theoretical standpoint, it might be supposed to be a frequent complication?

1. Because the edges of the lower end of the tube are rounded and when the latter, rightly mounted with the obturator, is in-

(1) The Medical Record, 1887.

(2) Ibid.

(3) Ibid.

(4) The Journal of the American Medical Association, 1892.

(5) Verhandlungen der Gesellschaft für Kinderheilkunde, Heidelberg, 1889.

(6) Ibid.

(7) Deutsche Zeitschrift f. Chirurgie, 1892.

(8) The Brooklyn Medical Journal, 1893.

serted through the glottis, and is not too soon freed from the obturator, the possibility of detaching the pseudo-membrane is greatly diminished by reason of this completely rounded extremity.

2. Because thick pseudo-membranes are extensively formed only in extremely rare cases, even in the most virulent epidemics, while thinner pseudo-membranes even of larger dimensions, comparatively speaking, easily pass through the tube. On this account, the detaching of these membranes, can hardly be considered of enough importance to be deemed a complication.

3. Even if thick membranes are formed in the upper air-passages, they usually have their origin below the vocal cords, and in this case, the tube easily penetrates into the lumen of the pseudo-membranes. If, however, the latter adhere to the vocal cords, they are more firmly attached to this place,\* so that the tube when introduced with necessary care, can hardly pass between the pseudo-membrane and the tracheal wall.

4. Because the ominous difficulty of breathing—even in the most severe croup cases—is not conditional upon the fibrinous exudate alone, but may be attributed to the subglottic swelling that is present as a rule (Rauchfuss†).

And why is obstruction of the tube by pseudo-membranes a rare occurrence?

1. Because, as before stated, very thick pseudo-membranes are seldom extensively formed and thinner fibrinous pellicles if detached, especially when broken, pass through the tube with comparative ease.

2. If the croupous process does not rapidly descend or, more properly speaking, remains confined to the trachea, the fibrinous exudate may be dissolved by rational treatment (inhalations of hot steam, mercury-therapy) and expectorated by the patient in the form of a slimy secretion, and this secretion never obstructs the tube.

Let us now examine the literature at our disposal, to ascertain in how many cases the subsequent performance of tracheotomy became necessary on account of the danger to life from detachment of pseudo-membrane.

\*Birch-Hirschfeld, Lehrbuch der path. Anatomie.

†Compte rendu des travaux de la Section de Pédiatrie, Copenhague, 1885.



Such cases happened in the practice of the following observers:

1887: Ferguson, <sup>1</sup> New York.....	1 case.
1888: Thiersch, <sup>2</sup> Leipzig.....of 31 observations,	1 case.
1888: Graser, <sup>3</sup> München.....of 4 observations,	2 cases.
1889: Guyer, <sup>4</sup> Zürich.....of 27 observations,	1 case.
1889: Ganghofner, <sup>5</sup> Prag.....of 41 observations,	6 cases.
1889: Ranke, <sup>6</sup> München.....of 65 observations,	2 cases.
1890: Widerhofer, <sup>7</sup> Wien.....of 142 observations,	1 case.
1892: V. Muralt and Baer, <sup>8</sup> Zürich.of 74 observations,	1 case.
1892: MaNaughton, <sup>9</sup> New York..of 143 observations,	1 case.
1893: Schweiger and Hüttenbren- ner, <sup>10</sup> Wien.....of 70 observations,	2 cases.

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of 498 observations, 18 cases.

Of 498 intubation cases, therefore, an immediate tracheotomy became necessary in  $3\frac{1}{2}$  per cent.\* Tracheotomy failed to relieve the asphyxia in only two of these cases to my knowledge—and these patients died from the pushing down of pseudo-membranes. One of these cases occurred in the practice of Dr. Von Muralt, the other, in that of McNaughton. In Von Muralt's case (reported by Baer) intubation was performed in the death agony. Post-mortem examination showed, besides the detachment of pseudo-membranes, bronchitis crouposa and extensive pneumonia. That a tracheotomy, moreover, in spite of the forcing down of thick pseudo-membranes, does not appear to be absolutely necessary in all cases, is sufficiently proved by the extensive casuistry published by intubators. Immediate extubation leads, in most cases, to the result that the loosened pseudo-membrane is ejected by violent coughing, either simultaneously with the tube

(1) New York Med. Journal, 1887.

(2) Verhandl. der deutschen Gesellschaft f. Chirurgie, 1888.

(3) Münchener Med. Wochenschrift, 1888.

(4) Correspondenzblatt f. Schweizer Aerzte, 1889.

(5) Verhandl. d. Gesellschaft f. Kinderheilkunde, Heidelberg, 1889.

(6) l. c.

(7) Pädiatrische Arbeiten, Henoch-Festschrift.

(8) Deutsche Feitschrift f. Chirurgie, 1892.

(9) l. c.

(10) Jahrbuch f. Kinderheilkunde, 1893.

\*In this paper, I have made use of those communications only in which cases of pseudo-membrane displacement were distinctly mentioned.

or directly after it. O'Dwyer,<sup>1</sup> Dillon Brown<sup>2</sup> and Waxham,<sup>3</sup> for instance, emphasize this fact. In some cases, the membranes were forced out by artificial respiration. In other cases, expectoration of the pseudo-membranes was facilitated by the immediate administration of strong alcoholic stimulants (brandy) and the severe cough caused by this agent. (The liquors were inhaled, that is to say, by the gasping patient, by which means, the latter was seized with a violent fit of coughing).

Those who dread the pushing down of pseudo-membranes in the practice of intubation, may be consoled by the fact that, until 1891, O'Dwyer and Dillon Brown,<sup>4</sup> out of more than 600 intubation cases, did not meet with a single death, which was due to suffocation on account of pushing down pseudo-membranes; further, that O'Dwyer<sup>5</sup> in his first 200 cases, pushed down pseudo-membranes only twice. The consequent asphyxia, however, was quickly relieved by immediate extubation, followed by expectoration of the pseudo-membrane.

That a brilliant result may be obtained even in the event of pushing down the pseudo-membrane, is proved by the following remarkable case of O'Dwyer's,<sup>6</sup> which we briefly report:

O'Dwyer performed intubation on a child  $3\frac{1}{2}$  years old, on account of a very severe stenosis, resulting from diphtheritic croup. Asphyxia ensued, caused by pushing down pseudo-membrane. Immediate extubation was followed by expectoration of a large pseudo-membrane, showing a cast of the trachea, and as the breathing was not relieved, reintubation was done. After intubation, breathing was perfectly clear. At the expiration of 26 hours, the tube was expectorated by the patient. A second intubation was unnecessary.

The pushing down of pseudo-membranes, is considered a frequent complication, only by those who perform intubation but rarely, and on that account, are not sufficiently skilled in the operation. Dillon Brown\* thinks it possible that the ostensible push

(1) l. c.

(2) l. c.

(3) The Journal of the American Medical Association, 1892.

(4) Transactions of the American Pediatric Society, 1891, p. 24.

(5) J. Bull, Intubation of the Larynx, London, 1891, p. 24.

(6) N. Y. Medical Journal, 1888.

\*Transactions of the American Pediatric Society, 1891.

ing down of pseudo-membranes is really not pushing down, but asphyxia caused by prolonged, that is, unskillful attempts to introduce the tube. "I venture to state that the great majority of deaths, which have been reported as due to pushing down pseudo-membrane, were the result of unskilled efforts and due either to apnœa from prolonged attempts at introduction, or to asphyxia by forcing the tube through a false passage." About the same may be said of occlusion of the tube by pseudo-membrane. It is met with now and then, but not frequently. It becomes dangerous only when not under sufficient control, that is, in these cases where immediate extubation is neglected. In such cases, however, spontaneous extubation frequently takes place. The patient ejects the tube in a violent fit of coughing and simultaneously, the obstructing membrane. It is undoubtedly true that O'Dwyer's tubes are comparatively narrow (narrower than the tracheal canulæ), but it is claimed by the most prominent intubators that despite this, large pseudo-membranes can be ejected through these tubes. Indeed—to cite merely from German literature—Baer (v. Muralt, *Zuricher Kinderklinik*) reports several cases where the patient expectorated large pseudo-membranes through the tube.

A nine-year-old child expectorated in nine days pseudo-membranes of  $6\frac{1}{2}$ , 3, 5, 3 centimetres in length, largely through the tube, which was retained in all eighteen days and four hours. Number of intubations, 34; the tube was coughed out 15 times. Cure.

In another case, a four-year-old child expectorated 8 pseudo-membranes of considerable size, principally through the tube. Number of intubations, 9. The tube was retained in all  $145\frac{1}{2}$  hours. Cure.

We emphasize the fact that secondary tracheotomy was not performed in either case. Although Escherich\* maintains that the greatest disadvantage of intubation is the excessively difficult and exhausting expectoration of pseudo-membranes, yet the above-mentioned instances, as well as numerous cases cited by other intubators, with the same happy result, ought to greatly diminish the value of his assertion.

On the whole, I find in the collective literature, only a single case where obstruction of the tube by pseudo-membranes resulted in death from suffocation; it is that of Wheeler† in the year 1887.

\*Wiener klinische Wochenschrift, 1891.

†l. c.

Immediate extubation, however, was neglected. Huber,\* who reported the case, considered it probable that immediate extubation would have saved the patient's life. For my part I have no doubt but that several fatalities have occurred in consequence of occlusion of the tube. Among the weaknesses of mankind, belongs the dislike of reporting failures. That this unpleasant complication has had fatal results only sporadically, is sufficiently proved, in my opinion, from the literature of intubation.

In this connection, I would like to mention that O'Dwyer† has recently devised round tubes, shorter and of larger calibre than those in general use, for the easier expulsion of the thicker pseudo-membranes (see fig. 1). These tubes are characterized by their un-

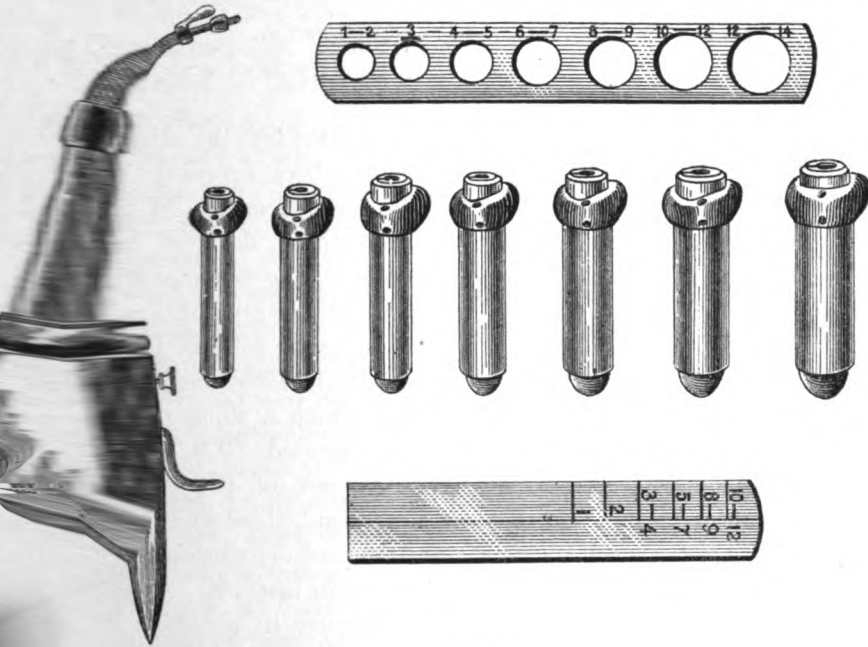


FIG. 1.

usually large collars, straight shaft, and large lumen. The length of the largest tube is 3 centimetres, while in O'Dwyer's original tubes, the length varies between 4 and 7 centimetres.

O'Dwyer recommends the use of these short, broad tubes, for but a short time, 1-3 hours, and then only in cases where clinical

\*New York Medical Journal, 1887, February 27.

†Waxham showed these tubes in the Chicagoer Aerzte-Verein in October, 1890.

symptoms of detached membrane are undoubtedly present. Leaving these tubes longer in the larynx is not to be advised, as they might cause decubitus. In the use of these tubes, therefore, we cannot dispense with the original O'Dwyer tubes.

I have used them, myself, only a few times, and can state merely, that their introduction is most difficult, even for very skilful intubators.\*

In the children's hospital under my charge, I have performed more than 500 intubations, and among my collective patients, not one death resulted from pushing down pseudo-membranes, although this accident has happened several times. In three or four cases, this might have resulted fatally,—as large and unusually thick membranes were detached in the trachea,—had not immediate extubation overcome the danger of suffocation.

The following cases are cited, as instructive from a practical point of view:

1. Katharine Sz., nine-year-old girl, admitted into the diphtheria ward, February 26, 1892. Patient has been feverish for a week, coughs, breathed with difficulty for one day. Medium diphtheritic process in throat, stenotic breathing, decided symptoms of a stenosis of the upper air-passages. The dangerous stenosis, together with pronounced cyanosis, call for prompt intubation, which is done at 11 a. m. Livid asphyxia follows intubation, on which account, patient is immediately extubated; a violent fit of coughing supervenes, during which a thick pseudo-membrane of imposing dimensions is expectorated. The pseudo-membrane is 13 centimetres long, a cast of the trachea, bifurcation of the bronchi, even of the second, third and fourth ramifications. After the expulsion of the pseudo-membrane, the breathing is clear, the tube, however, is again inserted. On the morning of February 27, as there is difficulty in breathing, in spite of the tube secondary tracheotomy is performed, but without success; early on February 28, symptoms of bronchitis crouposa and pneumonia having developed, death took place. Post-mortem examination showed: Superficial diphtheria of the fauces, laryngo-trachitis and bronchitis fibrinosa. Pneumonia

\*O'Dwyer recommends these tubes, also, when foreign bodies have entered the upper air-passages, provided they are movable. In one case of this kind, I have attempted to do this, without success, however. Patient cured by tracheotomy.

crouposa of the upper and middle lobes of the right lung with pleuritis fibrinosa of the same side.

It is worthy of mention, that a perfect copy of the expectorated pseudo-membrane was found in the air-passages, which clearly proves that in cases of so marked severity, the membranes may be reproduced very quickly.

2. Serena B., five-year-old girl, admitted into the hospital August 24, 1893, has been ill for four days, complaining of sore throat. Recovered from measles three weeks ago. Medium diphtheria of the fauces besides stenosis to a marked degree. Shortly after admission, patient was intubated, after which respiration seemed to be only partially free. At 7 a. m., on August 25, extubation was done on account of cyanosis, after which patient coughed out a thick pseudo-membrane, 9 centimetres long, a cast of the trachea, the bifurcation and second and third divisions of the bronchial tubes. Reintubation was performed, after which the breathing became perfectly free. On the night of August 25, cyanosis is again observed and extubation immediately performed, but without success; therefore, the tube is again inserted. Asphyxia follows, on account of which the tube is removed, still without success. The asphyxia is finally relieved by artificial respiration. Patient soon begins to cough and ejects a thick pseudo-membrane. The breathing becomes free. The membrane is 13 centimetres in length, and shows a cast of the trachea and of the third, fourth and even the fifth division of the bronchial tubes. On August 26, in spite of recent intubation, the condition becomes critical, and on the afternoon of the same day, death takes place with symptoms of bronchitis crouposa and pneumonia.

In this case, we had the opportunity, again, of seeing the rapid reproduction of pseudo-membrane.

3. Marie S., ten-year-old girl, admitted October 1, 1893. Sore throat for four days. Very extensive diphtheritic process of fauces and nose with marked pharyngeal stenosis. Offensive breath, voice hoarse. On October 2, hoarseness more noticeable. October 3, laryngeal stenosis, developing rapidly. At 4 p. m., expectoration of a pseudo-membrane by violent coughing upon which the breathing becomes free; intubation unnecessary. The membrane is nine centimetres long and was formed in the trachea. Stenosis again sets in on the morning of the 4th on account of

which intubation is performed; asphyxia follows; extubation immediately performed; the patient coughs out a pseudo-membrane, whereupon the breathing is free. The latter was formed in the trachea, and is 10 centimetres in length. Stenotic breathing again occurs. Reintubation is unsuccessful. Secondary tracheotomy is performed, and after opening the trachea, the child again expectorated a membrane 9 centimetres long, a cast of the trachea and bifurcation. October 5, the child dies with symptoms of bronchitis crouposa and pneumonia.

4. H., a boy\* five years old, taken ill February 24, 1893, with faucial and nasal diphtheria. February 26, voice hoarse, breathing rather difficult. Early February 27, stenosis in such a marked degree that intubation seems urgent. The introduction of the tube is very difficult. Intubation followed by asphyxia.

Immediate extubation does not relieve the asphyxia. The administration of strong wine, however, causes violent coughing, by means of which, a thick pseudo-membrane is expectorated. The membrane is 11 centimetres long, and shows a perfect cast of the trachea and the bifurcation. Although the breathing is quite free after expectoration, reintubation is performed. Breathing clear until towards evening; during the night of February 27 and 28, symptoms of bronchitis crouposa appear, and on the afternoon of March 1, the child dies.

In the treatment of more than 500 patients, occlusion of the tube by pseudo-membrane occurred in several instances. The obstruction of the tube generally resulted in violent coughing, which caused the expulsion of both tube and membranes. The ejected membranes were frequently of imposing size. If the patient did not cough out the occluded tube, immediate extubation generally gave relief. When the membranes were not removed with the tube, they were almost instantly coughed out. I, myself, have never observed a case where occlusion of the tube resulted in death.

As, in the hospital under my direction, extubation, from the first was performed by means of the thread attached to the tube, it was often done in cases of sudden danger, by the nurse in charge, the inspecting physician being informed after the successful extubation, because reintubation might become necessary.

\*This case I observed in my private practice, with my friends, the head physician, Dr. Farkas, and Dr. Kővér.

In my opinion, occlusion of the tube can hardly result in death, if the patient is under continual observation and the cord is left attached. Guyer,\* of Zürich, was the first to perform extubation by means of the cord; Ganghofner followed his example; by their advice, I practiced it myself. It affords me pleasure to observe that American operators also avoid the systematic use of the extubator.

Sustained by my own experience, I express my opinion respecting the questions under discussion, as follows:

1. The pushing down of pseudo-membranes—during intubation—is but seldom observed, and is fatal only in very rare cases. The resulting asphyxia can generally be overcome by immediate extubation, as the loosened membrane is expectorated, immediately after the removal of the tube, so to speak. But if this is not the case, artificial respiration or secondary tracheotomy respectively may be performed.

Occlusion of the tube by pseudo-membranes is not a frequent complication, and if it does happen, is generally made harmless by expectoration of the tube. To prevent eventual occlusion from becoming fatal, the patient should be under continual observation. The constant supervision of a trained nurse is essential.

Leaving the cord and fastening it around the neck, enables even an inexperienced person to perform extubation in case of occlusion.

The pushing down of pseudo-membranes and obstruction of the tube by pseudo-membranes form, undoubtedly, a dark side of O'Dwyer's method, yet, in discussing the operation, these comparatively rare complications must retire to the background, when comparing them with the brilliant results obtained by intubation, for the simplest surgical procedure may end fatally for the patient. And if we compare intubation with tracheotomy and observe the results of both methods of operating, we must acknowledge that tracheotomy is much more dangerous than intubation.

As Ferdinando Massei, the Italian laryngologist, says: "The possibility of pushing down pseudo-membrane is a convincing proof that O'Dwyer's operation, although a bloodless procedure,

\*Correspondenzblatt f. Schweizer Aerzte, 1889.



is not without danger;”\* yet this disadvantage, it seems to me, ought not to prevent us from practicing this humane operation, a blessing to mankind, in ever widening circles.

## PHILADELPHIA PEDIATRIC SOCIETY.

FREDERICK A. PACKARD, M.D., IN THE CHAIR.

November 8, 1898.

DR. S. McC. HAMILL showed a boy aged six years, in whom there was a very strong systolic thrill with a loud, low-pitched, distinctly limited systolic murmur in the second left interspace. There was scarcely any hypertrophy of the left ventricle. The right border of cardiac dullness extended an inch and a half to the right of the right edge of the sternum. The child had not been cyanotic at any time during his life and there was no clubbing of his fingers. The condition was thought to be due to a congenital narrowing of the pulmonary orifice.

### DISCUSSION.

DR. D. J. MILTON MILLER.—I do not think that there is any question that the physical signs point to pulmonary stenosis. The only question is as to its origin. There is a possibility that it is not congenital, but so long as there is no history of any illness that might have caused it, I think we must accept the lesion as of such origin.

DR. J. P. CROZER GRIFFITH.—The doubt naturally arises whether this is a case of congenital stenosis because of the absence of cyanosis. Moreton Stillé, in a classical article published years ago, analyzed a long series of cases of congenital heart disease and found in every case where there was decided cyanosis that pulmonary stenosis was present, and, conversely, where pulmonary stenosis was present, cyanosis was present also. He was

\*“Questo pericolo rappresenta la larva che ogni operatore si trova davanti ed è la dimostrazione irrefragabile che la intubazione, ben che incrinata, non è scevra di pericoli.” L'intubazione della laringe. Napoli.

among the first to point out that congenital cyanosis was not due to the mixture of arterial and venous blood, but to some obstruction in the pulmonary circulation, such as pulmonary stenosis. If the murmur in the child presented is due to pulmonary stenosis the question arises, if Stillé is correct, how can it be that he has no cyanosis at all? However, it is often difficult and often even impossible to base a diagnosis of stenosis upon the character of the murmur, especially when we remember that only about 5 per cent of cases of pulmonary stenosis, as seen at autopsy, are pulmonary stenosis alone, and that the others are all instances of the combination with some other lesion. I think it is probable that this boy must have some other lesion present, and that this lesion is, so to speak, so compensating that his pulmonary circulation goes on properly in spite of his pulmonary stenosis and that, therefore, cyanosis is absent. The most frequent combination of lesions is that of pulmonary stenosis with perforate septum ventriculorum, often, too, with patulous ductus arteriosus. Of course such a combination as that would permit the blood to reach the lungs in a fairly satisfactory way, but even then it is puzzling to know why he has no cyanosis.

DR. NEWCOMET exhibited a case of MENINGOCELE, EPISPADIAS, AND PROBABLE EXSTROPHY OF THE BLADDER.

#### DISCUSSION.

DR. GRAHAM.—The portion of Dr. Newcomet's paper that deals with meningocele is especially interesting to me. Several years ago I had under my care in the Jefferson Hospital an infant with a large meningocele. The case remained in the wards several weeks; it was seen by a number of the staff and several surgeons, and finally after consultation we decided not to operate. The ring of apparent bone that surrounded the meningocele seemed to be so large that the possibility of ligaturing and removing it was not considered. The child failed gradually in nutrition, the tumor became so large that it was difficult to move the patient freely, and it was finally taken home. The subsequent history of the case is interesting. The child gradually became weaker, the tumor ruptured, and an autopsy revealed the fact that the meningocele had been absolutely cut off from the cranial cavity. I think it had originally communicated with the cavity

of the arachnoid, and at the time the child was brought to the hospital it presented the typical signs of meningocele, except pulsation. The tumor expanded decidedly when the child cried. About six months after I saw this case, one appeared at the hospital that was very similar to it, except that the swelling was immediately over the posterior fontanelle. That case also, I showed to several of the surgeons and they again declined to operate. The child's condition was fairly good, but this apparent ring of bone at the base of the tumor contraindicated operation. The mother finally took the child home and sent for me later to see it. I found the skin distinctly hot over the tumor, and feeling that possibly it might have pus, I decided to open it. Dr. Lefevre and myself made a slight incision, allowed a lot of pus to drain away, washed out the abscess cavity and applied a sterile dressing; the child began to improve and got entirely well. This was probably not a case of meningocele, but the differential diagnosis was difficult to establish. In several cases of spina bifida I have been surprised at the smallness of the opening into the spinal canal, and it has occurred to me since Dr. Newcomet said that this meningocele was apparently successfully cut off, that the possibility of relieving these cases through operation, especially with modern technique in surgery, would warrant a more general use of the knife than it has been put to in the past.

Dr. Jorson.—There is no doubt about the case being a very marked one of epispadias. I should consider it exstrophy, although there may be some sacculation of the bladder. I noted the raw, exposed mucous membrane, bathed in urine, and other features of exstrophy, and I thought I could detect the orifices of the ureters, although they were very inconspicuous. The swelling above it and just below the umbilicus I think would correspond to a true congenital umbilical hernia. A few months ago I saw a rather interesting case of malformation of the external genitals at the Children's Hospital, which at first puzzled me considerably. It was a case in which there was a tendency to hypospadias, which had not gone beyond the cleft in the prepuce and scrotum. The most conspicuous feature was the cleft in the scrotum. When I examined the child, the two halves of the scrotum, each enclosing a descended testicle, overlapped the penis; on separating them and drawing them to either side, it was seen that the penis was apparently buttonholed through the

scrotum and was curved downward, so that the stream of urine was directed backwards over the perineum. On raising the penis the glans was seen to be surrounded through three-fourths of its circumference by the cleft prepuce; the glans itself was normal in shape, the meatus urinarius was very small and there was a very short, tight frænum, which was the cause of the incurvation of the penis. In looking this up in Ahlfeldt's Atlas, I found a case which resembled it, excepting that there was associated a perineal hypospadias. It is easy to see how a condition like this could, when exaggerated, simulate hermaphroditism. One interesting point in connection with Dr. Newcomet's case is the association of a meningocele, which is not uncommon in cases of exstrophy of bladder, as also is the typical hernia on either side not uncommon. In my case there was a supernumerary thumb on the right hand. I mention this simply in connection with the well-known fact that several malformations often co-exist in one person.

DR. HAMMOND.—I should like to have heard the results Dr. Jopson obtained in the treatment of his case. As to the patient before us, I cannot say that it is a typical case of exstrophy, especially as I could not discover the presence of the ureters. Nor is the almost constant hernia demonstrable; of course the epispadias is very clear to us all. A case I saw some time ago bearing on the treatment, at least was a very clearly defined one of exstrophy and the results of treatment were very unsatisfactory indeed. After trying to close the anterior wall of the bladder by plastic operation, I found that urine still trickled away. I then endeavored to divert the proximal ends of the ureter into the bowel (Simons' method). In one of them I was successful in so planting it. The other was unsuccessful in so far as perfect union was not secured, and as a result leakage occurred. The child eventually succumbed.

DR. NEWCOMET.—One point of interest occurs to me. The mother had a fall of three or four steps when she was three months pregnant, and since the bladder and navel ring are so near together, it occurred to me that perhaps this case could be explained by the drawing of the belly wall downward. The heart and liver seem to be in good position, so that this explanation does not seem entirely clear. As to the ring in diagnosing meningocele, this case had an appearance very much like

hydrocele. As the finger approached the opening the skin felt tougher and much heavier, and by pressing upwards one could mark out a well defined ring. As to Dr. Jopson's allusion to the ureters, I do not think that his suggestion is quite exact, for I have seen the child stay dry for an hour and then suddenly pass water which would then well up. The child was born five weeks ago during the last hot weather, and it has never shown any sign of irritation of the skin. The skin around the opening and about the scrotum is in very good condition for that of a baby wearing diapers. Most children born in hot weather show some chafing if the mother or nurse cannot look very carefully after them.

DR. J. P. CROZER GRIFFITH read a paper upon the **WEIGHING OF INFANTS IN THE FIRST TWO YEARS OF LIFE**; with the exhibition of a new weight-chart. He reviewed the published tables of weight of Bouchard, Outelet, Fleischmann, Camerer, and others. depicting them, for convenience of comparison, in the form of plotted curves upon a single wall chart.

He exhibited the weight-chart devised by himself, and which he had had published for general use. He then reviewed the investigations made upon the physiological loss in weight during the first day of life, and showed in a single wall chart plotted curves of this loss, according to the studies of different observers. Finally, he laid stress upon the necessity for systematic frequent weighing and recording of the weight of every infant.

#### DISCUSSION.

DR. SCOTT.—I think Dr. Griffith is to be congratulated upon the accuracy of his chart and his "line." I have had under my care for the last 14 months a child which I have had carefully weighed and the weight of which I have had recorded on Dr. Griffith's chart, and found it an extremely valuable acquisition. It is easy for the mother to handle and for the doctor to interpret at a glance. It is especially interesting to me, because I have been watching a child artificially fed upon milk from the Walker-Gordon Laboratory and found that the milk either from that laboratory or modified at home, has caused such growth of the child that the line has coincided practically identically with the weight curve on one of Dr. Griffith's charts. Therefore, it seems

a valuable acquisition to physicians who see a large number of breast and artificially fed infants.

DR. E. E. GRAHAM.—I agree with Dr. Scott that Dr. Griffith has brought a very important subject before the Society. The ordinarily accepted rule that a child has double its birth-weight at the 5th month and triple at from the 12th to the 14th month makes a very good useful working record. Dr. Griffith did not mention in his paper the fact that the weekly gain in weight assists in diagnosis. At my clinic at the Jefferson, the scales are used for children under the age of one year very much more frequently than the thermometer, and very often give more assistance in arriving at a diagnosis, than does any other single factor. In cases of malnutrition, for instance, in which the change in the child's appearance from week to week is very slight, and in which the question of tuberculosis occurs; in those in which the child has enlarged glands, and but slight, if any, fever, and in which the disorder of digestion is not in itself sufficient to account for the waste condition, children of perhaps 10 months of age, but not weighing more than 10 or 12 pounds, I have come to the conclusion that if a child gains a few ounces from week to week it will recover. I am unable to decide at times until the child has been weighed, whether the case is malnutrition following indigestion, or whether it is one of malnutrition associated with tuberculosis, and if, after two or three weeks of modified treatment with appropriate treatment devoted to digestion, the child does not gain in weight, the diagnosis has in my experience almost always been tuberculosis and not malassimilation connected with indigestion.

DR. D. J. MILTON MILLER.—I desire to refer to two points: One is, as to the average weight of a child at the end of the first year. I am glad to see that Dr. Griffith puts the average above that of most accepted charts, particularly Holt's, which, I believe, is the most widely accepted in this country, and in which the weight at one year is placed at 20 pounds. I have in my hand the records kept of three children, one of them now a child of 9 years of age. One child was weighed daily for six months, and then weekly until the close of the 1st year; the other two children, until they were two years of age, were weighed every week. These were all children in good circumstances in private practice. I can only account for the low average generally given by

the fact that the weights are those of hospital children. In my cases, one child weighed at birth 7 pounds; this child was fed on the breast 10 months, and then artificially fed, and weighed at the end of the 12th month,  $22\frac{3}{4}$  pounds. The second child was fed artificially from birth. The first child was a girl, the second was a boy. At the end of the 12th month the boy weighed 22 pounds, 5 ounces. The third child, a girl, who was breast-fed until the 6th month, and after that artificially fed, weighed at the end of 12 months, 22 pounds, 10 ounces. The very striking agreement of these figures is interesting and instructive.

Another point I would like to call attention to, is that it is necessary not to weigh the child too often. If a child is weighed every day, it is remarkable what variations will occur. I have the record of a child whose weight was taken every day for six or seven months. The child gained 2 ounces one day, and next day would gain nothing, then next day a quarter of an ounce, then 3 ounces, or perhaps it would lose, but at the end of a week the child would gain 5, 6 or 7 ounces. These variations continue all through the first year. So if a very anxious mother weighs her child every day, she is apt to be alarmed, and even a very anxious physician may be much disturbed by these variations. They occur even in weekly weighings. A child apparently in good health will sometimes not gain at all for a week or so. My observations also corroborate the fact that a child born with a weight below the average, has weekly gains above the average until the proper weight for its age is made up. For instance, a child with a birth-weight of  $5\frac{3}{4}$  pounds, gained at the end of the 8th day a half ounce, then, in a series of weeks, varying amounts (9 to 12 ounces), far above the average for the normal child. Holt makes the normal weekly average gain 4 ounces, and I think Starr says the average daily gain is three-quarters of an ounce, making 5 ounces a week. I think there is no doubt that the use of the scales is the only sure index we can have for the proper growth of a child. The mere fact that a child increases in weight is not, however, a proof that the child is thriving. It is well known that rachitic children are often enormously fat and may gain constantly in weight, but at the same time be suffering from poor nutrition. The same may be said of those fed largely on the carbohydrates.

DR. J. P. CROZER GRIFFITH.—I would emphasize what Dr.

Miller has said as to the variation seen from day to day. Vierordt has some charts illustrating this vividly. The only time when I have a child weighed more than once a week, is when the question of diet is a very urgent one, and I wish to know before a week is up whether the child is losing or not. The matter too, of the loss of weight in the first week of life is very interesting and confusing. The recorded observations have been made in different ways. One investigator has weighed the children twice a day for the first week or ten days, and another only once a day. One observer's custom was to weigh a child as soon as born. If this occurred before midnight, the second weighing was made in the morning. But if the birth took place after midnight, the second weighing was delayed until the second morning. This could but give divergent results in the weights for "one day old." And since all investigators have set fixed hours in the daytime for the weighing, and have followed different methods, this may help to explain why there are such variations among the charts for the first ten days.

DR. FREDERICK A. PACKARD reported a case of CARBON DIOXIDE CONVULSIONS FROM CONGENITAL HEART DISEASE. The case occurred in the person of a six-weeks-old white baby with spina bifida. Convulsions began at two weeks of age, were always preceded by crying and cyanosis, which latter gradually deepened until just before the convulsions came to an end. Oxygen inhalations frequently seemed to prevent the convulsive movements after cyanosis had begun, and had a favorable influence upon the developed spasms. Death occurred from exhaustion after seventy-eight convulsions. At autopsy, there was found a patulous ductus arteriosus and foramen ovale.

#### DISCUSSION.

DR S. McC. HAMILL.—Dr. Packard's case illustrates the fact that extensive lesions admitting of the admixture of venous and arterial blood can exist without giving rise to cyanosis and other common evidences of a congenital lesion, such as clubbing of the fingers, etc. These facts show that their existence is not necessary in my case in order to make sure the diagnosis of congenital pulmonary lesion. I recall a case that came to autopsy in the Philadelphia Hospital, during my residence as interne; a man aged



75 years died of pneumonia. At the autopsy there was discovered a patulous foramen ovale that had never given rise to any symptoms during life. The heart was of normal size and the condition had not been suspected.

D. L. EDSALL, Recorder,  
330 South Sixteenth Street,  
Philadelphia, Pa.

## BOOK REVIEWS.

*Chirurgie de l'Intestin.* By M. JEANNEL, Professor of Clinical Surgery in the Faculty of Medicine of Toulouse. Paris, 1898. Institut de Bibliographie Scientifique, Publishers.

The author states in his preface that he has written the present volume because the subject of intestinal surgery is of particular interest to him, and he hopes the work may be interesting to others. He has, we may say, treated his subject with exactness, clearness and thoroughness, and has given to those engaged in abdominal surgery a most valuable work.

The first part considers the general technique, sutures, instruments, post-operative treatment and accidents. Next comes a section on operations on the small intestine; another on operations on the ileo-cæcal region, the fourth and last being devoted to the surgery of the colon. There are 365 figures in the book and the paper and printing leave nothing to be desired.

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*Chirurgie de l'Uterus.* By HENRI DELAGENIERE. Paris, 1898. Institut de Bibliographie Scientifique, Publishers. Price \$1.60.

This is a very practical treatise on operative gynecology from the pen of a distinguished young surgeon of Le Mans, France. In its 465 pages will be found described all operative procedures in vogue, including operations on the pregnant uterus. A good chapter is written on vagino-perineal and sacral methods of removing the uterus.

Illustrated by 378 figures and well printed, this book will certainly be found a valuable addition to the library of the practical surgeon.

*Die Störungen des Verdauungsapparates als Ursache und Folge anderer Erkrankungen.* By DR. HANS HERZ. Berlin, 1898. S. Karger, Publisher. Price \$2.50.

This book is a complete treatise on diseases of the stomach, occurring either as sequels or complications of the many diseases to which man is heir.

In its pages will be found in the following order the disorders of the stomach, produced by diseases of the blood: acute infectious diseases, chronic specific inflammations, nervous affections, diseases of the respiratory, circulatory, genito-urinary and cutaneous systems.

Such a work as this naturally has a value, not only to the physician, but to the surgeon as well, and we may say that as far as completeness goes, the book before us is quite up to the mark, and is to be commended.

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*Vorlesungen über specielle Therapie innerer Krankheiten.* By DR. NORBERT ORTNER. 2 vols. Vienna, 1898. Wm. Braumüller, Publisher.

Of all the books on applied therapeutics, we unhesitatingly say that Dr. Ortner's lectures are far better than anything we have seen. The two volumes cover the field of treatment of medical affections very thoroughly.

A number of excellent formulæ are interspersed in the text, which will greatly aid the young practitioner in the art of prescribing, an accomplishment that the younger members of the American profession rarely possess in these days of compressed tablets and patent preparations of doubtful value. Let the physician treat diseases as outlined in the pages of the work before us, and it will be greatly to his credit and to the advancement of sound therapeutics.

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**ESSENTIALS OF HOMŒOPATHIC THERAPEUTICS.** By W. A. DEWEY, M.D., Professor of Materia Medica in the University of Michigan, Homœopathic Medical College. Published by Boericke & Tafel, Philadelphia, Pa. 1898. Price \$1.50.

This is the second edition, revised and enlarged, of a quiz compend on the application of homœopathic remedies to diseased states, and it admirably fulfills its purpose.

Each of the more common ailments or diseases of mankind—134 in all—arranged in alphabetical order, is discussed therapeutically by question and answer.

Often a dozen or twenty drugs are suggested and the exact indications for, or at least of, each are stated.

INTERNATIONAL TEXT-BOOK OF MEDICAL ELECTRO-PHYSICS AND GALVANISM. Chief Editor, HORATIO R. BIGELOW, M.D. Published by the F. A. Davis Company, 1914 Cherry Street, Philadelphia, Pa. 1895.

This book is so far as we know the standard American work on this subject. The authors are from various places in this country, Canada and England. The various chapters discuss electro-physics, animal electricity, static electricity and magnetism, faradism, galvanism, electro-physiology, electro-diagnosis, and cataphoresis, which indicates the scope of the book. The illustrations are good, the paragraph division simple and clear, the descriptions and demonstrations satisfactory. If you are interested in electricity and its application in medicine—and who is not—this will prove a valuable addition to your library.

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TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By JOHN J. REESE, M.D. Fifth edition. Revised by Henry Leffmann, A.M., M.D., Ph.D. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1898. Price, \$3.00.

This volume of nearly 650 pages is intended to be "a students' text-book and a reference work for general practitioners in medicine and law." It is needless to say that it admirably fulfills its purpose. The new edition does not contain a large amount of new material, for the principles of medical law do not change often or rapidly. The application of the X-ray is, however, of more recent value and is discussed at some length. The first 400 pages are devoted to a consideration of the signs and causes of death, a chapter being given to each important class, such as wounds, burns, electricity, drowning, etc. Then there are, too, chapters on feticide, infanticide, rape, insanity and malpractice. The last 250 pages present a good toxicology. Death resulting from the bite of a snake or other poisonous creature seems about the only form not discussed. Possibly such cases are almost invariably accidental.

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THE AMERICAN TEXT-BOOK OF GYNECOLOGY. Edited by J. M. BALDY, M.D. 2nd edition. Philadelphia, 1898. W. B. Saunders, Publisher. Price, cloth, \$6.00. For sale by subscription.

We have little to say on the second edition of this standard work, excepting that it is up-to-date, well illustrated and written. The present edition has been revised, much new material having been introduced and some of the old eliminated or modified, particularly the sections on the bladder, urethra and ureters.

We desire to extend our congratulations to the editor.

# ANNALS OF GYNECOLOGY AND PEDIATRY

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## ORIGINAL COMMUNICATIONS

### CURETTEMENT IN PUERPERAL FEVER.

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THE two principal indications for curettement after labor are the following: (1) When there is a retention of a mass of placenta of small size, either after a labor at term or after abortion. If the mass is of some size, it is far better to detach it with the finger, that is to say, perform a curage, that is to be followed by a curettement so as to be certain that nothing is left in the uterine cavity. In this case the indication is absolute; it is the best prophylactic measure to avoid secondary infection of the uterus from decomposition of the placental débris; it is also an excellent means for arresting hemorrhage which so often accompanies an incomplete expulsion of the placenta.

(2) When, after a normal labor and an apparently normal delivery of the placenta, fever with fetid lochia and other symptoms of infection of the uterus appear.

We will consider more particularly the second question because it bears more particularly on the subject of this paper. The older accoucheurs, when there were signs of infection, simply prescribed symptomatic treatment, but at the present time, with the knowledge we have of the genesis of infections and their manner of propagation, we can no longer follow such therapeutics.

In the first place, is puerperal fever really due to an infection of the uterus? Although as yet no special micro-organism has been isolated from this complication of the puerperium, the microbic nature of this affection is not to be disputed. According to Doléris, it was Pasteur who first demonstrated the presence of germs in the lochia of women who were sick, while those taken from healthy females remained sterile. The researches of Pasteur were taken up and confirmed by Goenner of Basel, by Dolderlein, and more recently by Strauss and Sanchez Toledo. We now admit that puerperal infection is more especially due to the streptococcus pyogenes, which also produces erysipelas and phlegmasia alba dolens. Where do these organisms come from? Do they normally live on the surface of the vagina, or are they carried in from without? This question is still much discussed and agreement is still far off. Thus Winter admits that there are pathogenic and non-pathogenic organisms in the vaginal tract, while Dührsen, on the contrary, declares that a healthy female has a healthy vagina; for him the organisms are always introduced from without by the physician's finger or by insufficiently sterilized instruments. No matter what their origin may be, these various organisms find the puerperal uterine cavity a most excellent *nidus* for their rapid development and propagation. From the uterus, the infection can reach the parametrium and tubes by the lymphatic channels and set up a suppurating or non-suppurating inflammation of these organs and tissues; or the infection may invade the entire organism, producing these cases of puerperal sepsis without any localization, and which rather rapidly end in death of the patient from septicemia.

The manner in which the virus is spread is still a much discussed point. Some authorities, for example, admit that it may occur without any metritis; others believe that there must be a cervical metritis in the first place and then the inflammation extends by continuity to the broad ligaments and the remainder of the parametrium.

The latter is particularly Fritsch's opinion, and he admits that the cervix uteri, which presents a lesion at the time of labor, is a natural entrance for infection. Now the infection extends to the parametrium by continuity and contiguity. From this theory, (which may be correct in some cases, but many observations have shown the erroneous character in the majority of cases), Fritsch

is hostile to any intervention with the curette in puerperal fever, which may be easily understood, since he believes that the endometrium of the corpus uteri always remains intact.

Admitting that puerperal fever is produced by an intra-uterine infection, we believe that the best means to prevent the extension of the germs of infection is to combat them at their starting point, either by a complete and oft repeated disinfection of the uterine and vaginal cavities by antiseptic irrigations or by scraping away the diseased mucosa.

Nevertheless, should we at once take up the curette at the least rise of temperature in a post partum case? We do not believe so. In some cases a few intra-uterine irrigations will be quite sufficient and it is only in those instances in which this means has remained without effect that we resort to curettement which, in spite of the only slight danger when it is done according to all the rules of the most strict antiseptics, is none the less a disagreeable operation for the patient.

We shall point out farther on, apropos of the objections that have been made regarding curettement, what are the complications to be feared in curetting a puerperal uterus.

The following is the treatment carried out at the maternity of Lausanne when there is a threatening puerperal infection or when the infection has appeared. As soon as a rise in temperature has been found after labor an antiseptic intra-uterine irrigation (preferably a 1 in 1000 or 2000 sublimate solution) preceded by a thorough vaginal irrigation. The next morning (rise in temperature usually occurs in the evening) another irrigation is given and is repeated several times during the day. If on the next day the temperature has become frankly febrile, if the lochia are thick with a tendency to fœtor, curettement is done. The following days we continue the intra-uterine irrigations, at first morning and evening, then only once a day. When the fever has completely disappeared, the temperature no longer showing any tendency to go up in the evening, simple vaginal irrigations are begun.

It is well to change the nature of the solution employed as frequently as possible, as the organism becomes used to antiseptics just as it does to any medicine, and still more, a certain number of antiseptics cannot be employed with impunity on account of their toxic effects.

The liquids we prefer are, besides sublimate in the beginning,

creolin, lysol, solution carbolic acid 3 per cent, turpentine water (to be particularly recommended when there is a pseudo-diphtheritic membrane on the cervix), permanganate of potassium, and lastly, a simple sterilized salt solution.

The cases here reported will show the happy results obtained at the Lausanne Maternity by the above mentioned treatment. We only report those of rather peculiar interest, as all are more or less similar. The greater number are instances of partial retention of the placenta or a very small portion of the membranes. It is quite striking to see how frequent these retentions are, either after abortion or labor at term. In some of the cases the miscarriage was not recognized by the patient, and in consequence no medical treatment was given at the time. From this fact we can understand why physicians have wished to give as a single cause to chronic hemorrhagic metritis a miscarriage that had occurred without the patient's knowledge, as has been pointed out most clearly by Cumston of Boston a few years ago.

Before detailing my cases, a few words on the danger of curettement may find their place here. Although curettement does not enter into the class of major operations, it should be performed with all the antiseptic precautions that are employed in more important interferences. Here, in fact, more than in the majority of operative procedures of minor surgery, an infraction of the rules of antisepsis may result in extremely serious consequences. Consequently we do not understand the lack of antisepsis and even the most elementary asepsis, which is present in many institutions, and a uterus curetted in this manner has a more useless than useful result. Infection of the uterus from a curettement is one of the dangers of this operation, but will be easily avoided by observing the rules formulated by Lister.

The second danger is perforation of the uterus, and this is the only serious reproach that the adversaries of curettement can direct against the operation. This accident is to be particularly feared when we have a puerperal uterus with soft and pliable walls. Consequently in this curettement more than in any other, much prudence and gentleness must be exercised; the instrument should be used without violence and only the largest size blunt curettes are to be employed. And for that matter do we not all know of perforation occurring with a uterine sound or an

irrigator? And still no one would stop the use of these instruments on the ground that they were dangerous.

As to danger from hemorrhage, experience has demonstrated that it is a pure illusion. On the contrary, curettement arrests uterine hemorrhage instead of producing it, and if the patient is a bleeder the operation may be completed by an intra-uterine gauze packing.

Can the uterus be curetted in cases when there is an acute inflammation of the adnexa (acute puerperal parametritis) with or without abscess formation? The opinion of specialists is very divided on this question. While some recommend abstaining in cases of abscess of the adnexa, believing that the curette only spreads the infectious germs, others, far from abstaining, advise curettement. Thus, Berlin of Nice is very categorical on this point and says: "I have for my part often curetted patients whose adnexa were painful, and others who manifestly had foci of perimetritis; what I can say is that in these cases where there is a preëxisting lesion of the adnexa, I have never seen curettement the cause of the slightest septic complication." Professor Rapin believes that when there is inflammation of the adnexa, curettement is not to be advised; it is only exceptionally that it is to be employed, when, for example, there is a retention of the placenta, and using it with extreme prudence. He has employed and has seen it employed in several cases of inflammation of the adnexa, and if in the majority of these cases the operation had no bad results it certainly did increase the intensity of some of the symptoms.

We have done it in two cases of puerperal parametritis, in one of which an abscess had already formed, without remarking any result, bad or good. In the first case, however, the temperature dropped quite a little after the operation but went up again a few days later. Consequently we believe that this operation, without being dangerous, if performed in sufficient precaution, is useless as regards a cure, because if infection has started in the mucosa of the uterus, it will have long ago passed the limits of the organ and have become localized in the adnexa. This question has for that matter been well studied recently by Marney of Bordeaux.

Some adversaries of curettement have based their aversion to this manner of treatment, especially as concerns the operation in



a woman recently delivered, on a pretended sterility which occurs afterwards. Now, experience has shown that it is the contrary result that takes place. How many women who have metritis and who, from this fact, remained sterile or who, when pregnant, always miscarried during the first few months of pregnancy, have been able to conceive or go to term after one or several curettements! Consequently this operation has been advised at various times for the cure of sterility.

The endometrium has the power of regenerating very rapidly, and what is obtained by the curette, is nothing less than a process occurring physiologically at each pregnancy and at each menstruation, that is to say, a complete renovation of the mucosa.

And lastly, some few gentlemen have declared that curettement of the puerperal uterus in these cases was done too late. According to them, it should be done at the very beginning, before fever appears, because at this time they say that generalized infection has already taken place. Now such a conclusion is false, as Braun has shown; infection is not generalized when fever begins and is still localized to the endometrium.

The sooner curettement is done, as we have already said, the more complete and rapid will be the result, but Fritsch even upholds that all cases cured by this operation would have gotten well without it.

From what has been said and the cases here reported, I may be allowed to draw the following conclusions: (1) *Puerperal fever being a disease whose origin is an infected wound, should be treated by an antiseptics of the organ containing this wound, viz., the uterus.* (2) *The treatment should consist in the first place, in antiseptic irrigations of the vagina and uterus, frequently repeated.* (3) *If in spite of the irrigations fever persists, curettement is indicated.* (4) *Case VII demonstrates that curettement is equally useful in puerperal fever, termed without localization.* (5) *When there are acute lesions of the adnexa (parametritis), it is better to abstain from curettement unless there be an absolute indication for the operation.*

CASE I.—B., multipara, delivered at her home. Nothing abnormal in the labor itself. During the delivery of the placenta there was a hemorrhage necessitating artificial extraction of the placenta, which had partly peeled off. All went well until the fifth day, when the temperature went up to 38.°8 C. in the even-

ing (morning is was  $36.5^{\circ}\text{C}$ .); at the same time the lochia became more abundant and fetid, and curettement was decided upon (no intra-uterine irrigations had been given). On the next day the temperature had fallen to  $37.9^{\circ}\text{C}$ ., and in the evening it was only  $37.2^{\circ}\text{C}$ . The lochia, which were abundant for two days, but not fetid, were normal in quantity. Recovery.

CASE II.—C., multipara, had a miscarriage at two months. Three days later, slight elevation of the temperature ( $38.3^{\circ}\text{C}$ . in the morning) and the lochia smelt rather strong. The next day the temperature was  $39.3^{\circ}\text{C}$ . in spite of intra-uterine irrigations. Curettement put an end to all symptoms.

CASE III.—M., multipara, had a miscarriage at the fourth month without manual interference, but the placenta came away in a ragged condition. Up to the fifth day there were no symptoms, but after this the lochia were fetid and the temperature was as follows:

Fifth day, morning,  $37.2^{\circ}$  (fetid lochia).

Sixth day, morning,  $38.3^{\circ}$  (intra-uterine irrigation, bichloride 1 in 2000).

Seventh day, morning,  $37.8^{\circ}$  (intra-uterine irrigation, bichloride 1 in 2000).

Eighth day, morning,  $37.6^{\circ}$  (intra-uterine irrigation, bichloride 1 in 2000).

On account of the persistent fetid lochia and the tendency of the morning temperature to remain above the normal, a curettement was done. On the next day the temperature did not get above  $37^{\circ}\text{C}$ ., and the lochia became normal.

CASE IV.—A. M., suffered with loss of blood with clots for about two weeks. From the anamnesis it is probable that the patient miscarried during the second month. Hemostatics, vaginal packing and the colpeurynter were all employed in vain and curettement was resorted to. The curette brought out blood clots and bits of membrane. The next day, hemorrhage was completely arrested, and at no time was there any rise of temperature.

If I have recorded this case, although there was no temperature, it is because it has its importance in this sense that the curettement, which was employed in a puerperal uterus, immediately stopped a hemorrhage which had resisted all treatment for two weeks. The next case is also reported because this operation in-

stantly stopped a very severe pain in the uterus, following a miscarriage, although there was hardly any rise of temperature.

CASE V.—On May 18, 1897, I was called to a young woman of twenty-five years, multipara, who had miscarried two days previously, and who had had a severe hemorrhage on the next day. When I arrived, the hemorrhage was nearly over, but the vagina was filled with clots so that the cervix could be reached with difficulty. The os was opened enough to allow the index finger to enter, but no laceration could be detected. A sublimate vaginal irrigation partly removed the clots and an ergot potion was ordered.

The next day all bleeding had ceased, but the patient complained of pains in the lower abdomen. As examination showed that there were some clots engaged in the cervix, we thought that the pains complained of were due to uterine contraction, and vaginal irrigations were ordered to be continued twice daily, alternating with sublimate and tannin.

The clots had no odor and there was no fever. This condition lasted five days and the bleeding had stopped, but the pain in the lower abdomen persisted and was localized in the uterus by the patient. The vaginal culs-de-sac were perfectly free and painless. As the clots became slightly fetid, and as the temperature at 3 p. m. was 37.°8 C., we decided to curette. A number of clots were scraped out and microscopically we found bits of placenta. By the next day all pain had disappeared and the uterus had commenced its normal involution. Five days later, the patient being well in every respect, was allowed to sit up.

We report this case as an example where curettement was employed only for fear of later complications (septic metritis from retention of clots and bits of placenta). There had been no temperature of any account nor marked odor to the lochia, hemorrhage had ceased and the only suspicious symptom was the uterine pain. As this disappeared at once after curettement, we admit that it was due to contractions of the uterus set up by the contents of the cavity. Now the blood had been present within the uterine cavity for several days, and there was reason to believe that it might cause a *locus minoris resistentiae* for infection.

(To be continued.)

## SALICIN USED IN A CASE OF PUERPERAL FEVER.

ELLA BLAYBOCK ATHERTON, M.D.

Mrs. M., aged 36, V1para, was delivered of a male child at 7 A. M., November 9, 1898. The labor was easy and natural. I had attended her in three previous labors, from all of which she made a good recovery without any complications. I was called in this case, but owing to my own illness could not attend her, and she secured the services of a homœopathic physician, who has a large obstetrical practice. November 18, he was dismissed and the case placed in my hands. My first call was made at 10 A. M., when I found the patient very nervous and anæmic, face pale and anxious, lips and ears purple, pulse 120, temperature 100.°5 F. The tongue was heavily coated, skin yellow, a little bile had been vomited that morning, and the patient complained of constant nausea and insomnia. On one finger on each hand were large red looking ulcers, one caused by being hit with the edge of a button some four weeks previous, and the other by a scratch about a week before the confinement. Bowels were slightly tympanitic and very tender to the touch, especially in the right iliac region. Gas could not be passed voluntarily and caused much pain at intervals. Urination was difficult but not painful, urine high colored and scanty. The uterus was very tender and congested, the pelvic cellular tissue filled with exudate so that all the pelvic organs were immovable, as if they were encased in a plaster cast. Intra-uterine exploration gave no evidence of any foreign matter and the very scanty mucus discharge had no foul odor. I learned that there had been constant pain since the birth of the child, increasing in severity for 48 hours, when a large clot was passed. This gave only partial relief, so the attending physician made a digital examination of the uterine cavity, but found no more clots. Whether the hands were sterilized or not I did not learn. The bowels had not been moved till the sixth day, when the patient insisted upon taking a dose of castor oil. Douches were not ordered, but a few were given by the nurse on her own responsibility, and she also applied poultices to the bowels for a few hours one day when the pain was intense.

I ordered Eff. Mag. Sulph. 3ii every four hours and tab. trit. Hydrarg. Chlor. Mit. gr. 1-10, every half-hour till the bowels moved, the action to be aided by an enema, if there was no result after eight hours, DaCosta's Heart Tonic (Wyeth's), Strych. Sulph. gr. 1-50 and Whiskey 3i every four hours; the abdomen to be covered with a light flaxseed poultice kept as warm as possible, copious hot sterile douches every eight hours and abundant nourishment. The dietary included two raw eggs per day with as much milk, gruel, cocoa, bovine, malted milk and Mellen's Food as the patient could be induced to take. The forenoon of the 19th I found the patient much quieter, the bowels had moved freely with the aid of an enema, there was scarcely any pain, pulse was 108, temperature 100° F. I ordered the treatment continued with the exception of the calomel, also 2 gr. Quin. bisulph. every six hours, and pill of 2 gr. Cas. Sag. and  $\frac{1}{3}$  gr. Pod. at night. Early that morning the patient had been visited by a relative, a physician from a neighboring town, who catheterized her with a small glass catheter. Mrs. M. complained of severe pain on the introduction of the catheter. The 20th I found her with a severe cystitis, a constant pain in the region of the bladder, and all the other annoying symptoms common to this wearing disease. The urine was thick, scanty, high colored, slightly acid, and had a very strong odor. Pulse was 120 and temperature 102° F. Patient very nervous, had slept little during the night. I ordered the whiskey stopped and gave a mixture of Acetate of Potash, Corn Silk, Collinsonia and Pereira Brava, every three to six hours, in half a glass of water, and from four to eight drops Fl. Ex. Hyoscyamus every three to six hours till the pain was relieved. On the 21st, I found the patient had passed about two quarts of urine since the day before, which was alkaline, high colored and loaded with mucus and epithelium. There was very little pain on micturition, but a constant ache in the bladder and pain streaming up the right side; pulse 120, temperature 104° F. Patient very weak, restless and sleepless, I gave 4 gr. acetanilid, and fearing the effect of another sleepless night I left a tablet of morphia sulph. gr.  $\frac{1}{4}$  and atropia sulp. gr. 1-150 to be given at night, and repeated in half an hour if necessary. The next day the morphia, of which she had taken  $\frac{1}{2}$  gr., had quieted her, she had slept about eight hours and felt much more comfortable, but the temperature was still 104° F., and pulse 120. The urine contained pus.

Thinking that I must use some antiseptic for the bladder, and the patient refusing to submit to lavage, I ordered Salicin in solution, in 2 gr. doses every four hours and dropped the Quinine. I gave Salicin in preference to Salol because I feared the effect of Salol on the stomach, and also because I wanted some bitter tonic, and I thought the Quinine might be irritating the bladder. To my great delight, the next day there was no pus in the urine, and the temperature had fallen to 102° F., pulse 112. I was allowed to wash out the bladder, which I did with a solution of nitrate of silver, 8 gr. to a pint of water. The pelvic organs were somewhat less tender and the exudate partially absorbed. I continued the treatment, and the next day the temperature was about 101.°5 F., tongue was beginning to clear, and there was no pain anywhere; urine clear and abundant. I stopped the remedies for the cystitis except one dose of the Potash mixture at night, and as I had always relied on Quinine in fever following childbirth, I dropped the Salicin solution and went back to Quin. 2 gr. every four hours. This was on Wednesday, the 23d. The pelvic exudate was so much less that I reduced the douches to one every 24 hours, followed by a boroglyceride and hydrastis suppository. Thursday afternoon the temperature was again 104° F., and the tongue more thickly coated. There was no increase of trouble in the pelvis, and I was at a loss to account for the return of fever. Since the first dose of morphia on Tuesday I had continued to give about 1-12 gr. in solution once in from 12 to 16 hours, and she kept this up for the stimulant effect, gradually increasing the time between the doses and decreasing the dose, till Thursday she was taking about 1-16 gr., which small amount could not be disguising any very serious local condition. Every forenoon she perspired freely, a cold, clammy sweat which did not materially reduce the temperature. Friday and Saturday the conditions remained unchanged, the temperature never being less than 103.°5 F., and reaching 105° F. on Friday afternoon.

I felt that the high temperature must be caused by some septic condition of the blood, for all the excretions were normal, and so was the pelvic region with the exception of a slight metritis. Remembering the great improvement during the two days I had used the Salicin, I stopped the Quinine and resumed Sal. 3 gr. every four hours. Improvement was noticeable in every way in 24 hours, and by Tuesday, the 29th, the temperature had dropped

to normal in the morning and 99.°5 F. at night. Friday there was no fever, the tongue was clean, the patient slept well and had taken no morphia for three days. The appetite was returning and I allowed some solid food. December 7, four weeks after confinement, she was allowed to sit up and she dropped all medication except Strych. 1-60 gr., and Salicin 2 gr. t. i. d. I am aware this one case proves very little for the use of Salicin in puerperal fever, but the improvement seemed more than a coincidence. The patient had no idiocyncrasy against Quinine as she had often taken it in 2 gr. doses every four hours for a cold, and had received benefit from it. I was so convinced of the beneficial result of the Salicin in Mrs. M.'s case that I used it with a patient suffering from septic poisoning from necrosed placenta, which had been retained five days after a miscarriage before I saw her. In spite of intra-uterine douches and internal medication, after four weeks' treatment I had been unable to reduce the temperature lower than 102° each afternoon, with sweating and chills, insomnia, coated tongue and complete anorexia. I substituted the Salicin (3 gr. every four hours) for the Quinine, and in one week, with no other change in treatment, her fever had disappeared, the foul discharge had stopped, the tongue was clear, and the patient ate and slept well.

Nashua, N. H.

## HYGIENE OF PREGNANCY.

J. H. PRESTON, M.D.

My paper might be more correctly designated "Hygiene and Medical Supervision of Pregnancy," and while I regard the subject as one of very great importance, it is neither my object nor expectation to enlighten the body of physicians on this subject, but to elicit discussion for my own edification, and, perhaps, of others who feel an equal interest, as well as want of information.

Now we know that this most interesting of conditions, "pregnancy," is purely physiological, yet the pregnant woman needs especial care, and should have medical supervision throughout the

entire period of gestation, beginning as soon as she is aware that conception has taken place.

I believe it to be the duty of the husband out of justice to his wife, to his medical adviser, and to the future welfare of his offspring, to thus early acquaint his physician that the wife is "enciente," and place her under his supervision. Under normal conditions there will be little or nothing for the physician to do but to give instruction regarding general hygienic regulations. But under our modern social régime, which is so full of such various dissipations, he will sometimes have his hands full in getting instructions carried out.

One of the greatest difficulties is in the matter of dress, as our women are so loth to give up their social relations that a great many will persistently dress in a manner that is highly deleterious. Some will lace themselves in an attempt to hide their condition, as though their prospective maternity was a crime or disgrace, instead of the most exalted position to which it is possible for them to attain, and the especial object of their creation.

Again, some pregnant women who do not injure themselves by improper dress, will through a false modesty, immune themselves from all outdoor exercise and fresh air, and thus become victims of lassitude, rendering themselves unfit for the ordeal toward which they are tending.

Instead of the surroundings mentioned, the prospective mother should wear loose but comfortable fitting garments of medium weight, suspended mostly, or entirely, from the shoulders, without corset, unless it be one especially provided for the pregnant condition, for it is important that there should be as little constriction or compression as possible of the chest or abdomen during uterine development, for no doubt many complications arise during pregnancy, or at time of delivery, because of improper dress; it may also have its influence in faulty development of the fetus.

It is important that the woman who is "enciente" should have moderate outdoor exercise; that she may have pure air, which will aid her in having healthy muscular tonicity, good appetite and digestion. This will largely aid her in being light-hearted or cheerful, because of the mental as well as bodily employment or diversion.

Most, if not all, pregnant women immuned to the four walls of



their room, or who only roam about the house, will become moody or melancholic from brooding over their prospective confinement. This should be avoided, for it often times has an unfavorable influence on the course or termination of gestation. Instead, we should have a happy, cheerful woman during pregnancy to expect a happy, uncomplicated delivery of a healthy, bright and laughing baby, a mother's joy and the father's pride. We may also expect a safe and comfortable passage through the puerperal state.

It is a fact admitted by physiologists, and proven by observation, that maternal emotions do affect the exterior of the fœtus as well as its mental organization. As a result, we sometimes see monstrosities and imbeciles that can be accounted for in no other way, yet none have been able to explain.

In the light of these facts, the wise physician should aim to direct the mind of his patient as well as her physical welfare. All sudden, unpleasant news, frights or physical shocks should be avoided, and instead, everything possible in the way of pleasant surroundings, with kind assurance of our interest in her welfare, and that she has our gentle and protecting care.

In all of this the physician can be of incalculable aid in a normal pregnancy, should he assume control in the beginning. But another and more weighty reason why he should be given supervision of pregnancy is, that many diseases and complications may, and often do, arise during this period, and much depends upon prompt and judicious action, or intelligent and timely advice, all of which the physician will be better able to give his patient if early acquainted with her condition.

I stated in the outset that pregnancy "is purely a physiological condition." Then if so, why so much care during this period?

I would answer, because, like some other physiological processes (for instance, menstruation and dentition, both of which are purely physiological), pregnancy is in a greater degree liable to greater complications or accidents, and those of a graver character.

Almost any disease to which mankind is heir may supervene in the course of gestation, thus engendering a grave complication, or pregnancy may occur, and often does in spite of some chronic or inherited disease. Pregnancy may be the exciting cause which

arouses some latent disease, or predisposition to the disease, into activity.

Besides, there are a number of disturbances that might be termed physiological phenomena, as they are not fully explained except by reflex nerve action. Among this class we have the vomiting of pregnancy, with which we are all familiar, and oftentimes disagreeably so; neuralgia of the teeth, which occurs independently of caries; reflex or nervous respiratory interference, as cough and dyspnoea. I have a patient in my care now who has, in her two preceding pregnancies, suffered from dyspnoea throughout the entire period of gestation, this being her third pregnancy.

In all these troubles our advice is needed and it requires our best skill to combat them, and the best means of doing so is a close application of the laws of hygiene.

One of the most fatal diseases that can supervene in the pregnant state is pneumonia, which is better treated by prevention. That is, by proper hygienic care, it can almost always be avoided.

Diseases of the urinary system, either actual or sympathetic, call for our intervention perhaps oftener than any one class of troubles.

We are often asked to prescribe for irritability of the bladder or dysuria in first pregnancies, though rarely see incontinence in such cases, but do frequently meet with it in later pregnancies.

Retention of urine is not an infrequent, and sometimes a very grave accident, that is met with in pregnancy. If met with early in pregnancy, it may be attributed to reflex contraction of the neck of the bladder. But it is most frequently met with as a symptom of retroversion, at about the fourth month, or later, as a result of cystocele. In either case, it is a condition requiring prompt action, and if the physician had had the full confidence and oversight of his patient, he is all the better qualified to meet the emergency.

If there is any one function of the entire organization of the pregnant woman that requires especial care or attention over another, or all others, it is the renal. Four different forms of renal disease may be met with in pregnant women. Acute and chronic parenchymatous and interstitial nephritis, as well as a special form peculiar to pregnancy, and called pregnancy-kidney, or pregnancy-nephritis. This last not only begins during pregnancy, but ends with it. The symptoms are cedema and albumi-

nuria. The course is usually favorable, but sudden increase of the albumin and dropsy, with lessened excretion of urine, brings eclampsia, the horror of the pregnant and parturient state. Acute nephritis may also cause eclampsia, but it rarely occurs in the chronic form.

The differentiation of the three forms is made probable by the albumin appearing early in the chronic form, while it is not usually seen in pregnancy-kidney until the beginning of the last half of pregnancy.

Acute nephritis is characterized by scanty and highly albuminous urine containing red blood corpuscles. In these cases the physician should be wide-awake and alert that he may save his patient the horror of eclampsia. This can often be done by careful observation and judicious treatment during pregnancy.

I feel confident that I have, in several instances, averted this accident by pursuing this course.

For albuminuria that is very grave, the absolute milk diet is said to be the best treatment. Fournier says: "Not only is milk diet the best curative treatment of the albuminuria of pregnancy, but it is the best prophylactic treatment of eclampsia." He says, further, "that he has never seen a pregnant woman, subjected to this treatment for a week, become eclamptic."

But it is not my purpose in this paper to give you a dissertation on eclampsia, or any other disorder or accident of pregnancy. I only wish to emphasize the importance of an early knowledge of any coexisting disease or complication, that we may act intelligently for the welfare of our patients, and thus retain their confidence, as well as protect the reputation of our profession.

An additional means to the understanding of the condition during pregnancy, is an examination of the abdomen, after foetal viability by external palpation, as there may be something learned regarding the state of the foetus as to position or multiple pregnancy.

It is rightly proper that every woman in her first pregnancy, or one who has had special difficulty in a previous parturition, be examined by external and internal pelvimetry about the seventh or eighth month, for if the labor promises to be long, painful or difficult from obstruction of any kind, the obstetrician ought to know it in advance that he may elect, at the proper time before parturition, whether to choose the induction of a premature labor,

to depend upon the use of forceps or to resort to podalic version, symphysiotomy or a Cæsarean section, and thus avoid craniotomy.

We know that in the management of pregnancy no special rule can be followed, as no two pregnancies are alike, even in the same woman. So we are to be governed by general principles, our treatment being largely expectant. Our main reliance is in the carrying out of hygienic instructions.

I will say in conclusion that I am aware that my thoughts in this paper are not as systematically set forth as they might have been, but they serve to express my idea of the importance of the subject, which idea was the true motive for this paper. Another was that we are sometimes asked if there is no means of making child-bearing easier, and are told that some doctor in the community has said that he prepares his patients for the time of confinement, and by so doing makes their labor shorter and less painful. I have attended some women who said they had used some preparation advertised as "Woman's Friend," or "Child-bearing Made Easy," with benefit.

I saw no difference. In fact, I attended one lady in two confinements, one without, the other after she had used "Woman's Friend." The latter was the more tedious and painful, lasting about thirty-six hours.

Now, if there be any "balm in Gilead" for the parturient woman, I would be glad to have it.

Humboldt, Tenn.

## TREATMENT OF ECLAMPSIA.

W. R. BLAIRLOCK, M.D.

As eclampsia may occur before, during or after confinement, it will be best to consider the treatment from each of these periods.

With no desire to trespass upon the ground assigned another, I will refer briefly to some recent opinions that have been advanced anent the causation of the disease. Dr. P. Kollman (in *Cent. Bl. für Gynacol.*, 1897) says he does not attribute eclampsia to retrograde nitrogenous changes found in the blood, but to a disproportion of the physiological constituents of the blood—the accumula-

tion of fibrinous material in globulin or its derivations which may be found in the venous blood of eclampsia. This autointoxication has its origin in nephritis or mechanical obstruction which prevents the elimination of the poisonous fibrinous and nitrogenous elements which originate both in the maternal and fetal cells.

Allbut, in the *Lancet*, 1897, opposes the hypothesis that pressure upon the uriniferous tubules or nephritic veins by the gravid uterus or spasm of the nephritic arteries would cause eclampsia, but believes the accumulation of poisonous material in the blood produces the changes in the kidney.

He accounts for the greater number of cases occurring in primipara, not from reflex spasm from the uterus, but from lack of immunity. In multipara he holds that the toxines circulating in the blood have to a certain extent produced immunity. Volihard (Mon-Sehr of Geburtsh in Gynacol., 1897) experimented on rabbits with the serum and urine of healthy and eclampsia patients. He got negative results from the serum, but with the urine, in two cases, intra-venous injections produced coagulation during life. He says if this property of the urine in labor or eclampsia is verified by subsequent experiments, Schmorl's theory that eclampsia is due to autointoxication by an irritating coagulating substance will be tenable. The exact cause of eclampsia seems no nearer a solution than it was ten years ago. The whole trend of opinion is towards the acceptance of a poison in the blood as a cause.

Eclampsia being so universally associated with albuminuria whenever albumen is found in the urine of a pregnant woman, it should be regarded as a warning that eclampsia may occur during gestation, parturition or the puerperium. In approaching the treatment of a disease attended by such violent symptoms and such a high mortality, preventive treatment is of the greatest importance.

It is a matter of no slight importance that we have in a measure a successful preventive treatment. When a pregnant woman has albumen in her urine she should at once be placed upon a milk diet, which should be continued until the albumen disappears. Every few days a dose of mineral water or other mild laxative should be given: bismuth. saline, salol, benzonaphthol and occasionally some mercurial salt to keep the alimentary canal disinfected. After the urine is free from albumen, tonics such as

quinine, gentian or iron may be given. If albumen reappears, resort again to milk diet.

In a word, every care should be exercised to keep the different organs of the body in a state of healthy equilibrium. If, as sometimes happens, milk is not tolerated by the patient, bleeding may be tried, wet cups applied to the lumbar region, vapor baths. If all these preventive measures fail, or if they have not been employed and an attack of eclampsia come on before term, what shall we do? The first thing is to prevent a recurrence, if possible, consistent with the continuance of the patient's life.

Chloroform, chloral, morphine, veratrum, and other remedies, have been recommended. The room should be well ventilated, the clothing loosened, and the bladder examined to ascertain whether or not it is distended by urine.

The first duty, however, is to administer some medicine that will control the convulsions as much as possible consistent with a continuance of the patient's life.

Morphine, I think, has no place in the treatment of eclampsia. *Veratrum viridi* has its advocates; it is given hypodermically, in sufficient doses to bring down and maintain the pulse at about 55 or 60 beats per minute. I have no personal experience with it in eclampsia.

Chloroform, when pushed, which must be done to get its effects, will usually control the paroxysms, but if continued for any great length of time, it becomes a question not always easy to decide, which is the worse, the disease or the remedy.

Of all remedies, according to the statistics which I have examined, chloral, given alone, has been followed by the best results. By rectum is the only practical way to administer chloral.

Dissolve 150 grains of chloral in 10 ounces of pure water; inject 4 ounces into the rectum. Then every fifteen to thirty minutes, inject 1 ounce until convulsions cease, or until the whole amount is given. If the convulsions continue, it is best to wait a few hours, provided the medicine has all been retained, before giving more. Another way to give chloral, which varies slightly from the above, is to give 60 grains by enema. If this is only partly retained, give a second or a third dose of 60 grains. Wait five or six hours, and if necessary, give another 60 grain dose.

At the end of twenty-four hours, in either case, it is well to give another dose of chloral.

Too frequent examinations should not be made, nor should the patient be restrained by holding the hands and feet, as these manœuvres tend to excite recurrences. The tongue should be protected by holding a cork or soft piece of wood between the teeth during the attack.

If the convulsions cease and the child is still alive, the subsequent treatment up to term should be the same as when albumen is found before the inception of eclampsia, which has already been given. If, however, the child is dead, or the attacks show a tendency to continue, the uterus should be emptied with as little delay as possible. If the attack occurs at term, the same treatment should be instituted and the same attention given to ventilation and emptying of the bladder. The uterus should be emptied of its contents as soon as practicable. The necessity for speedy emptying of the uterus may call for a temporary administration of chloroform, but this should be discontinued as soon as possible and chloral substituted. If the attacks continue after the administration by rectum of 150 grains chloral and the temperature is high and the pulse strong, additional doses may be given until 180 to 200 grains have been given during the course of twenty-four hours.

A case is reported by Charpentier, in which 180 grains were given in ten hours and the patient made a good recovery. If too much chloral should be given, strychnia may be given to counteract the excessive effects. The subsequent treatment should be directed in keeping bowel and kidneys active, lochial discharge normal, and to the improvement of the blood by the administration of tonics and iron. A combination that has given the best results in my hands as a blood purifier during the puerperium is about the following:

R. Potass. Chlor.,	ʒij
Aquae,	ʒij
Tr. Ferri. Mur.,	ʒiij
Syr. Limon.,	ad. ʒiv
M. Sig.	Teaspoonful in water every four hours.

The diet should consist for some days mostly of milk so as to not overtax the digestive and eliminative organs; however, it will not be well to adhere so strictly to a milk diet as during preventive treatment.

If eclampsia occur during the puerperium, the same remedies used at confinement should be employed. Give calomel so as to get copious actions from the bowel, apply hot stupes to the abdomen, and give warm vaginal douches. If the lochia is offensive irrigate the endometrium with warm water, and remove clots or pieces of placenta, if present, with a curette.

M'Gregor, Texas.

## SYMPTOMATOLOGY OF PUERPERAL ECLAMPSIA.

T. W. SHEARER, M.D.

By puerperal eclampsia we mean eclampsia occurring during pregnancy or immediately afterward. This may occur at any time during gestation, but is more prone to occur during accouchement, or very soon afterward. We would not include in this class the various cases of eclampsia that might be accidental, or due to other, and distinct causes, as epilepsy, chorea, hysteria, etc., basing our diagnosis upon the symptomatology and frequency of these attacks at other times in individuals subject to these disorders, taking into consideration the possibility of puerperal eclampsia.

Prodromal symptoms are more often present when eclampsia occurs during the course of pregnancy than at the time of parturition or subsequently, and prominently among these are cephalalgia, usually frontal, defects of vision, as diplopia, indistinct vision or blindness, dyspnoea, and epigastric pain. I am inclined to attach considerable importance to severe headache, vertigo, and partial or complete loss of vision.

Sometimes insomnia will precede an attack of eclampsia. Albuminuria is a prodromal symptom of much importance. While every case of albuminuria does not result in puerperal eclampsia it is extremely probable that cases of eclampsia may and do occur without the appearance of albuminuria. For the integrity of the vessels and secreting cells of the kidneys being good, insufficiency does not occur even though the system is overloaded with urea.

Again, it is well to eliminate all possible chances of error before attaching grave importance to albuminuria by knowing that



it results from insufficiency of the kidneys, and not from urethritis, cystitis, pyelitis, leucorrhœa, etc.

The author is strongly of the opinion that albuminuria would eventually be symptomatic of all cases of puerperal eclampsia, should the causal relations exist for a long enough time to injure the parenchymia of the kidneys. The fact that the parenchymatous structure of the kidneys is strong enough to resist the escape of albumen or blood cells for a time does not prove that the blood may not be surcharged with urea, and other products of nitrogenous metabolism which are capable of producing the phenomena attending puerperal eclampsia. But more often the secreting cells of the kidneys become congested and less capable to perform the extra work entailed upon them, insufficiency occurs and albuminuria results. Albuminuria occurs in about ten per cent of all pregnancies, and eclampsia occurs once in about three hundred and fifty pregnancies, which leave quite a discrepancy between the two in point of number, but how many of these cases are due to diseases of the heart, liver, lungs, Bright's disease, the sexual or urinary organs, etc., the statistician (Auvard) does not say. However, we are inclined to consider albuminuria the most important symptom of puerperal eclampsia, although we believe that pregnancy in some manner at times arrests or interferes with the nitrogenous metabolism of the organism resulting in the accumulation of intermediate products of oxidation as creatin, creatinin, or other products that are even more poisonous than urea.

The above symptoms may be premonitory for some weeks or days; yet in many cases there are only a few hours or minutes, or no warning at all before the eclamptic attack. Some involuntary twitching of the facial muscles and rolling of the eyes quickly followed by a tonic convulsion which may or may not show opisthotonos or pleurothotonos, depending mainly upon the severity of the muscles involved. This in a short time gives way to clonic convulsive movements of the entire body, the convulsive movements growing less violent until they cease, which is generally in a few minutes, consciousness usually returns unless the first seizure is rapidly followed by others, in which case consciousness may not return and a series of convulsions is followed by a deep sleep. There is usually a temperature, and if the tongue is lacerated, bloody froth may issue from the mouth. The puerperal convulsions resemble epilepsy in many particulars: there

may be only one, or many may recur in rapid succession. The breathing becomes more or less stertorous, followed by profound coma. Death may result from asphyxia due to prolonged contraction of the respiratory muscles, or the shock to brain and sympathetic nervous system may be so severe as to paralyze the heart's action, and heart failure ends the scene, or a general enfeeblement of body and mind results, which may terminate fatally some weeks afterwards.

The author has had four cases of puerperal eclampsia, two of which occurred during accouchement, and two shortly after delivery.

Albuminuria was present in every case, severe cephalalgia, frontal in three, occipital in one. Dimness of vision and sudden attacks of vertigo with blindness occurred in two of the above cases. One suffered with dyspnœa. Two recovered rapidly, one having three or four other convulsions, all the convulsions occurring within six hours; there was extreme nervousness and little coma. One died on the second day after delivery in a tonic spasm, the first and only convulsion after delivery. The fourth and last case had sixteen or eighteen convulsions, extending over a period of three weeks, and was comatose most of the time, with intervals of consciousness in which she suffered with cephalalgia and extreme nervousness. The urine was examined often in this case, and the condition of the kidneys seemed to serve as a barometric indication of the case; as they improved the patient grew better and recovered. All the cases reported were primipara, and all young, otherwise healthy women.

Wallisville, Texas.

## EDITORIAL.

THE USE OF SUGAR OF MILK TO HASTEN LABOR OR TO FACILITATE THE EXPULSION OF RETAINED MISCARRIAGE.—In a recent issue of the *Revue obstétricale internationale* is to be found a paper of obstetrical interest by Dr. Klein, intern in the maternity of the St. Antoine Hospital of Paris.

Of recent years much attention has been given to the value of foods containing sugar as stimulants of the muscular fibre. Glycogene of the muscle, and especially glycose of the blood, have been found to be factors in the production of muscular energy, and a decrease in the fatigue of muscles or an increase in the activity of their contractions has been obtained by increasing the amount of sugar in the blood.

Several recent papers have demonstrated the influence of the ingestion of sugar on muscular work, and generally speaking it may be admitted that the ingestion of sugar increases muscular power and diminishes fatigue. Bossi has even shown the influence of sugar on the force of uterine contractions during labor.

Klein demonstrated on ten women in labor the effect of sugar of milk on uterine contractions, and his results have been apparently most satisfactory. He points out with reason, that lactose is a perfectly inoffensive medicine, and it has besides the advantage over other excitants of the muscles that its action is not limited to the uterus. The abdominal muscles are also excited at the same time that is the uterus, and the writer formulates the following six conclusions:

1. In all our cases of pregnant women at or near term, weak or slow uterine contractions were influenced by lactose.
2. In all our cases, the action of lactose was only of value after labor had begun, that is to say, the cervix effaced and dilatable, or better still, when dilatation had commenced. This result may be compared to that obtained in Chauveau's experiments, in which sugar only acted on the muscle after work, and consequently after part of the glycogene of the muscle had been consumed.

3. The smallest dose of lactose that we employed, after various

trials, was from twenty to twenty-five grammes. It always appeared to give the required results and better than that obtained by a smaller quantity, namely, fifteen grammes, in which case the dose had to be repeated. A larger dose than twenty-five grammes did not have any better effect on the uterus. It should be recalled that Masso and Paoletti remarked that small and medium doses were more effective, and they prefer to repeat the dose than to give one large one at the beginning.

4. According to our cases, the action of lactose will begin all the more rapidly the farther advanced be the labor and the more numerous be the previous labors, thus giving the uterine contractions their physiological character. Contractions will begin in from ten minutes to a half an hour, or fifty minutes after lactose has been given, but in cases where the cervix was not fully dilated it took about two hours to produce effect. 5. Lactose had no influence upon the delivery of the placenta or contraction of the empty uterus in the cases observed. The small quantity taken did not increase post-partum diuresis or have any effect upon the secretion of milk. It is, however, to be noted, that all the cases had been good nurses.

And lastly, the single case of incomplete miscarriage in which the author employed lactose, showed the usefulness of this drug. In less than an hour the closed cervix dilated and gave passage to the placenta, but the action ceased as soon as the latter was expelled, thus showing that the presence of a body within the uterus (placenta or embryo) is necessary in order to get the therapeutic effect; and the author suggests that perhaps by the administration of lactose in a doubtful case of incomplete abortion, we might be able to ascertain if the uterus was or not empty, because in the latter instance no uterine contractions would result.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### REPORT OF THE CASE OF AN INFANT WITH ACUTE INTUSSUSCEPTION. — REDUCTION BY INJECTION.\*

FREDERICK A. PACKARD, M.D.

At the last November meeting of the Pediatric Society, I read a paper upon the treatment of intussusception (*Therapeutic Gazette*, March, 1898), based upon the report of a case first seen by me on the fifth day of the disease. In that case I refrained from the use of injections and inflations, because of the long duration of the condition and the consequent probability of the existence of firm adhesions between the peritoneal surfaces in contact, rendering reduction impossible, and of ulceration or gangrene, rendering attempts at its reduction by milder measures dangerous. It may be remembered that in the case referred to, laparotomy was at once performed by Dr. LeConte, the operation revealing the difficulty of complete reduction, owing to the presence of a swollen lymph-node at the neck of the intussusciptions, and proving at the same time the danger of using high enemata in the late stages of intussusception by the finding of three perforations requiring suture for their closure.

On November 14, 1898, Anna H., white, aged 9 months, was brought to my ward at the Children's Hospital at about two o'clock in the afternoon. She had been well until ten days before admission, when the bowel movements became frequent, the stools being greenish and soft. On November 11, she had some loose, greenish movements, but seemed otherwise fairly well. That

\*Read at the meeting of the Philadelphia Pediatric Society, held in December, 1898.

night vomiting began and had continued until her admission. At first the vomitus was yellow, and vomiting occurred only after feeding. Later it occurred much more frequently, and the vomitus became first greenish and later brown and green. Intense pain, aggravated at intervals, began with the vomiting. For two days prior to her admission the stools had contained much blood and were passed after severe pain. On the day of admission the movements were composed almost entirely of dark green mucus. The physician in attendance, Dr. Turner, had noticed a tumor in the left side of the abdomen and had discovered a bright red mass projecting at the anus but receding on pressure. He recognized the existence of intussusception and advised removal to hospital. On admission the child was in a state of collapse with cold extremities, sunken eyes, and rapid, very feeble pulse. The abdominal wall was relaxed and soft, permitting the easy recognition of a sausage-shaped mass running from the left costal margin to the iliac crest. The right side of the abdomen felt distinctly less full than normal. On rectal examination there was felt a mass about three inches from the anus. This felt like a soft cervix uteri, was freely movable, and could be pushed slightly upward by the finger. The child was at once placed upon the sloping "enema-table" with the buttocks elevated. A few whiffs of ether were given and a large soft catheter was passed as far as possible into the bowel. At the point of entrance into the anus a small bandage was wrapped around the catheter, forming a plug. The catheter was then attached to a fountain-syringe tube, was withdrawn, and, after expulsion of air, was again inserted as far as the plug would allow. The reservoir of the fountain syringe had been filled with normal salt solution at a temperature of 100° F. The elevation used was about 2½ feet. After distending the rectum the abdomen was gently kneaded until a slight but distinct sensation of gurgling was felt by the hand on the abdomen. The fluid was allowed to escape but, as the tumor could still be felt both through the abdominal wall and by the rectum, the catheter was re-inserted and the reservoir elevated to three feet above the buttocks. Gentle kneading was again employed and after a distinct feeling of pronounced gurgling the catheter was withdrawn. On careful examination no tumor could be felt either through the abdominal wall or by the rectum, and the slightest pressure in the right iliac region produced a jet of water from the anus, an evident proof

that the cœcum was restored to its normal position, and was either wholly or at least greatly emptied of invaginated intestine.

During these manipulations the child was given just sufficient ether to produce relaxation, and also received two hypodermic injections of whiskey. During the operation the pulse was very feeble, but not much more so than when first felt.

After the enema the child was put in bed, external heat was applied and a hypodermic injection of gr. 1-300 of strychnia was given. She soon reacted, the extremities became warm and the pulse improved greatly in strength.

Following the operation there was no vomiting and the child took beef-juice (m.x.) every half-hour throughout the remainder of the afternoon and evening. At 6 P.M., there was a small stool composed of dark green mucus and a small amount of blood. Flatus passed once or twice through the afternoon and evening. Five minims of camphorated tincture of opium were given every hour.

On the next day the abdomen felt normal and there was no apparent tenderness. As the child had retained many small doses of beef-juice through the night, the mother was allowed to give it a small nursing at 10 A. M. This was retained and the nursing was repeated in an hour. Soon afterwards there was a loose, dark green stool containing fecal matter and very little mucus. It was passed with considerable pain. On the second day after admission the child was a little dull but otherwise was very well. On account of dullness the paregoric was stopped, particularly as the bowels had not moved for twenty-four hours. The child was given the breast every two hours. From this time until its discharge on November 23, the only noteworthy symptoms were a slight elevation of temperature (never above 102°) which ceased two days before its discharge, and the voiding of much dark grumous material with the stools for three or four days after admission.

It was felt that an attempt to relieve the condition by injections was justifiable in this case because the illness was of only two days' standing, and because the tip of the intussusceptum felt in the rectum was soft, rather small and movable. The reservoir was held no more than three feet above the level of the buttocks because it was thought that if more pressure were required there must certainly be sufficient organic change to necessitate either rupturing the

bowel before reduction could be effected or else resorting to surgical interference by laparotomy.

While it was realized that such a sign might be present while a small invagination of the ileum and the colon still remained unreduced, the fact that the slightest pressure over the cœcum caused the expulsion of a jet of water from the anus indicated that reduction had been successful to as great an extent as could be determined by any positive signs, and upon observing the presence of this sign, it was decided that the only way by which *complete* reduction could be definitely proven was by watching for the passage of flatus or fæces, for the occurrence of a re-formation of the tumor, or for a return of vomiting and pain.

But little is said in the books as to the after-treatment of cases of this character, yet it was felt that this required careful thought. The question of the necessity for any medicinal treatment was carefully considered. The most manifest danger was that of re-formation of invagination, which would presumably be favored by such irregular peristalsis as might readily follow prolonged pressure upon one portion of the gut. In view of this danger it was thought best to give small doses of opium for a time. Whether this course had any beneficial effect in this case can not be determined, yet it would seem that its practice in moderation could not do harm. The question of after-feeding is also one of importance, about which nothing much is said in the books. Imprudent or too early feeding might readily induce digestive disturbance, if not a return of the invagination, after such a serious upsetting of intestinal function. On this account the breast was practically withheld for 48 hours and the child was nourished by small quantities of beef-juice and albumen water for the first two days. Here also it is not possible to say whether this was a necessary precaution. In view, however, of the great preceding digestive disturbance some such precautions would seem advisable. The character of the stools after the operation gave rise to some uneasiness for a few days. They were dark, grumous, and had a curiously mawkish odor. Part of this character was attributed to the beef-juice; in part no doubt it was due to blood that had leaked through the blood vessels whose walls must have been affected more or less by the pressure exercised upon them for forty-eight hours.

I would again refer to the question of the use of forced enemata



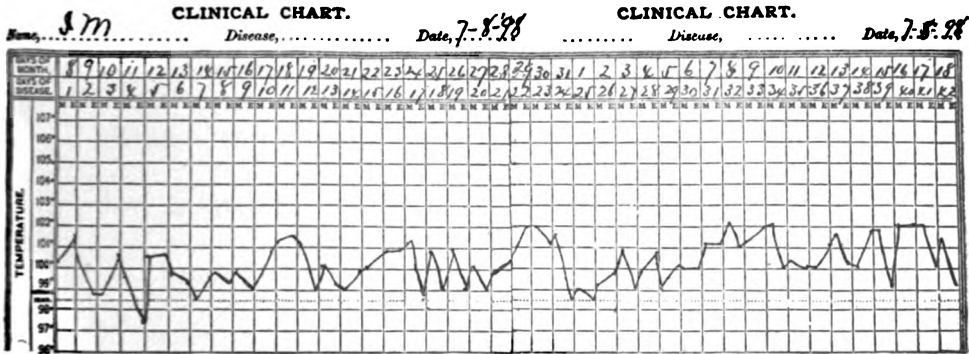
in the reduction of invagination. That they can be effectual in some cases is proven by the case herewith reported; that they might be dangerous is shown by the case previously reported, wherein three perforations of the gut were found upon opening the abdomen. The only safe guide that we possess at present as to the safety and efficiency of this milder method of relief is the duration of the lesion. In one case it had existed for two days and the apex of the intussusceptum was small, soft and slightly movable by the finger in the rectum; in the other case the duration was five days, and the apex of the intussusceptum was large, heavy, tense and rigid. In one case we had less reason to suspect serious damage to the parts involved than in the other. In my opinion, in neither case would it have been justifiable to use such pressure as is at times recommended, yet it would seem to me safer to use high pressure in the case of shorter duration than in the other where presumably greater damage to the intestinal walls had occurred. In neither case would it have been proper to have placed the child in the lower hall and mounted the stairs with the reservoir until such a pressure had been obtained as has been proven to be capable of rupturing either the peritoneal or all of the coats of a healthy bowel.

110 South Eighteenth Street, Philadelphia, Pa.

(For discussion see page 350.)

## REPORTS OF CASES.

Reported by F. W. Sawyer, M. D., Superintendent of Boston Floating Hospital.



July 5, 1898.—Service of Dr. Samuel Breck. I. M. Age, 6 months. Diagnosis: Cholera infantum, otitis media, ischio-rectal abscess. Admitted July 5, 1898. History: Has been sick for ten days; a good many dejections each day; vomits after taking nourishment. Has been fed on condensed milk and boiled water; a little cake. Weight, 14 pounds, 2 ounces.

July 5, 1898.—P. E. Well-nourished child. Surface of body, cold and blue. Rectal temperature, 100.°3 F. Diet:

Cream,	3ii
Milk,	3ii
Lime Water,	3iii
Water, <i>ad</i>	3iv
Milk Sugar,	3i

R. Brandy. m.x, at one. Repeat p. r. n. Rub chest with ol. camphor.

R. Bis. Mist. 3i, every two hours. s. o. s., diarrhoea. External heat.

Child lies in semi-stupor with eyes partly open. Takes the nourishment offered.

July 6.—Has had considerable blood in dejections. Retains but a small amount of food. Vomited curdled milk. Bowel irrigated with warm water; dejections green with mucus. Diet:

Wine Whey,	3ss-i every two hours
Barley Water,	3i-ii every two hours

R. Calomel, gr. 1-20 every twenty minutes until one grain has been given.

Irrigation every three hours, s. o. s.

Diet changed at night to

Barley Water,	℥i-ii
Lime Water,	℥ii
℞. Brandy, m.xx every three hours.	
℞. Salol, gr. i every four hours.	

July 7.—Had a good night, rested well; took food well; quantity of blood in dejections decreased.

July 8.—Diet continued same. Eats well, good color, and looks very bright. Weight, 14 pounds, 2 ounces.

July 10.—Improving; some blood in dejections; irrigated.

July 11.—Diet:

Milk,	℥ss
Barley Water,	℥iiss

Alternate with:

White of Egg,	℥i
Wine Whey,	℥ss-i

℞. Bismuth Mist., ℥i every 4 hours.

Dejections brown in color; no blood or mucus.

July 13.—Diet:

Milk,	℥ss
Barley Water,	℥iiss
Lime Water,	℥i

Alternate every two hours:

Wine Whey,	℥ii
White of Egg,	℥i

Some blood in dejection; also some mucus.

Still better in general appearance.

July 14.—Diet same as yesterday; had large green dejection with much blood; irrigated; vomited part of food. Had a good night. Weight, 14 pounds.

July 15.—Diet:

Milk,	℥i
Barley Water,	℥ii
Lime Water,	℥ii
Milk Sugar,	℥ss

Give wine whey, ℥i, if hungry, between feedings.

Four dejections containing some mucus, green in color.

July 18.—Has had exacerbation in temperature. Feces contain some curds. Green color. Is improving greatly in general appearance. Weight, 13 pounds, 9 ounces.

White of egg, added to whey.

R. Bis. Mist.,  $\mathfrak{z}\text{i}$  every three hours.

July 20.—Diet:

Cream,	$\mathfrak{z}\text{i}$
Milk,	$\mathfrak{z}\text{iii}$
Barley Water,	$\mathfrak{z}\text{ii}$
Lime Water,	$\mathfrak{z}\text{ii}$
Milk Sugar,	$\mathfrak{z}\text{ss}$

Temperature is lower. Dejections are improving in character.

July 22.—Diet same. Vomited once. Stools have been numerous and yellow in color. Looks very bright and well. Sleeps finely.

July 23.—Diet:

Barley Water.	$\mathfrak{z}\text{i}$ every two hours
Wine Whey.	$\mathfrak{z}\text{i}$ every two hours

R. Calomel, gr. 1-10, every fifteen minutes to gr. i.

Had sudden change for the worse; temperature fell; extremities cold; face blue and pallid. Stimulants were given and external heat applied. Weight, 13 pounds, 4 ounces.

July 24.—Diet same. Began to improve in the morning, and at night was much better; temperature normal; six dejections, yellow and watery.

July 27.—Diet same, excepting more whey added; irrigated once a day; dejections improving in character. Weight, 13 pounds.

July 29.—Diet same. Has recovered somewhat from relapse which she had last week, but is now very fretful. Dejections free from blood. No vomiting.

July 31.—Diet:

Cream,	$\mathfrak{z}\text{ss}$ , with
Barley Water.	$\mathfrak{z}\text{x}$ , every two hours
Wine Whey.	$\mathfrak{z}\text{x}$ , every two hours

R. Bismuth Mist.,  $\mathfrak{z}\text{i}$ , every two hours.

Irrigation. Seems brighter and takes food well; temperature normal. Weight, 12 pounds, 14 ounces.

August 2.—Diet same. Four dejections; irrigation; dejections normal.

August 4.—Diet same. Temperature higher; a discharge of pus-like material from right ear; eyes red and cloudy; five dejections yesterday, green in color; been quiet and somewhat apathetic today. Weight, 12 pounds,  $4\frac{1}{2}$  ounces.

August 6.—Diet: Barley Water to alternate with Modified Milk, with the formula:

Fat,	1.00
Sugar,	5.00
Proteids,	0.75

Every two hours.

Has not taken food well; been fretful; eyes still red; mouth very red and seems inflamed; two dejections today, green and watery.

August 8.—Diet same. Has 3 to 4 dejections per day, now yellow but thin; had a bad night, did not sleep any; there is a profuse discharge from left ear yet; treatment has seemed to allay the pain; abdomen around the navel shows multiple minute purpuric spots violet in color; skin of body harsh, dry and flabby; temperature,  $101^{\circ}$  F. Weight, 11 pounds,  $14\frac{1}{2}$  ounces.

August 10.—Diet same. Is doing better now; dejections green and yellow, well digested; does not take food well. Weight, 11 pounds,  $6\frac{1}{2}$  ounces.

August 13.—Diet: Two and one-half ounces of Modified Milk, with the formula:

Fat,	2.00
Sugar,	6.00
Proteids,	1.00

Every two hours.

Had six yellow or green dejections yesterday, two today; temperature is coming down again; sleeps well; vomited dark colored liquid material; ears are healing well and discharge has stopped; patient seems to be holding her own. Weight, 11 pounds,  $\frac{1}{2}$  ounce.

August 15.—Diet same. Does not take food well; four dejections, yellow and thick; an ischio-rectal abscess opened today and considerable pus evacuated; both ears began to discharge again.

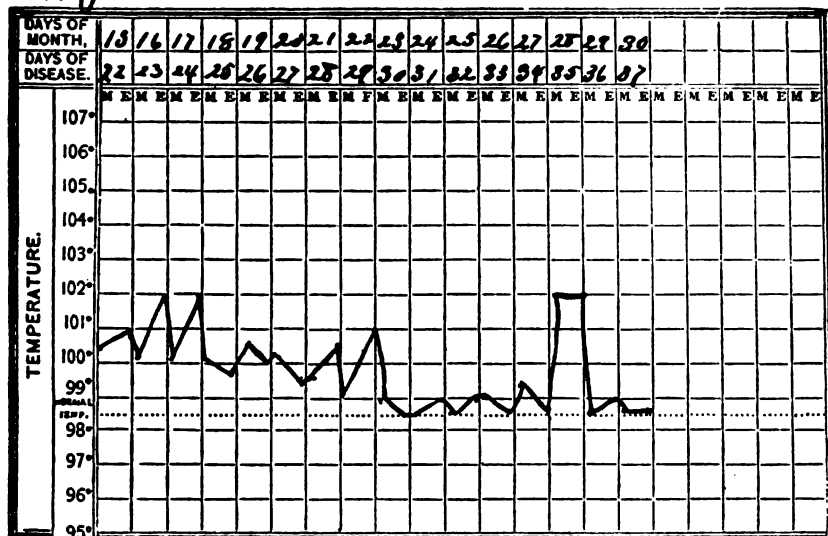
August 18.—Patient has continued about the same way, taking a very small amount of nourishment; ears and abscess discharging. Died at 7.45 P. M. After death, fully an ounce of bloody serum flowed from the ears; abdomen covered with purple hemorrhagic discolorations.

## CLINICAL CHART

Name, John.....

Disease, . . . . .

Date, 8-15-98



Service of Dr. Wm. E. Fay. J. C., age 20 months. Diagnosis: Entero-colitis. Admitted August 15, 1898. History: Patient has been sick for three weeks with vomiting and diarrhoea. Vomiting now stopped. Three to five dejections each day, containing mucus and blood. Pain before dejections. Sleeps well. Fed on barley water, ice and brandy. Weight, 15 pounds, 8½ ounces.

**Diet:**

Cream,	3i
Barley Water,	3iv
Milk Sugar,	3ss

**R.** Calomel, gr. 1-10 every half-hour to six doses. Irrigation.

August 18.—Diet:

Cream,	3i
Milk Sugar,	3ss
Wine Whey,	3iv

R. Calomel, gr. 1-10 with each feeding today.

Dejections one to three per day, yellowish green with some mucus. Temperature coming down. Seems to be steadily improving.

August 20.—Diet same. Four yellow watery dejections yesterday. Takes all his food and sleeps nearly all night. Temperature coming down slowly. Now 99.°5 F. Patient looks better.

August 22.—Diet same, with the addition of 3ss milk. Taken all his food today. Had three yellow movements today with some mucus. Temperature rose to 101° F. tonight, but sleeps well; still improving in appearance. Weight, 15 pounds, 6 ounces.

August 24.—Diet same. Two dejections, one with curds. Has cried some. Temperature nearly normal.

August 29.—Diet same. Has yellow well digested dejections. Temperature normal. Takes food well. Weight, 16 pounds, 12 ounces.

August 31.—Discharged well of bowel trouble. Has some bronchitis.

This case is a good illustration of what change in sanitary conditions and food will do in a short time.

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#### A CASE OF ERYSIPELAS MIGRANS.

JOHN LOVETT MORSE, A.M., M.D.

Physician to Out-Patients at the City Hospital and at the Infants' Hospital, Boston. Assistant in Clinical Medicine, Harvard Medical School.

Maurice S., colored, was the first child of healthy parents. He was born at eight months after a normal labor. He was breast fed. About June 1 he began to vomit and to have six or eight yellow movements a day. On June 7, swelling of the left side of the face and neck was noted. He also became feverish.

He was brought to the out-patient department of the Infants' Hospital June 8. He was then six weeks old, large and fat. There were areas of oozing intertrigo in both axillæ and in the folds of the neck. There was slight swelling of the left side of the neck, extending on to the cheek. The area extended from the intertrigo and was moderately reddened and hot. In the light of future developments, sufficient importance was not attached to it. He was given calomel internally and a dusting powder.

He was brought back on June 13. He was still vomiting. The dejections were normal, however, and remained so. His mother stated that the swelling left the left cheek and went to the right and from there to the chest. His mouth had begun to bleed the day before and that morning he had vomited "a lot of

stuff like wet tea leaves." The intertrigo was then healed. There was no swelling of the face, but both cheeks were desquamating. The upper portion of the body, both front and back, was swollen, reddened, hot and indurated. This area had a definite, elevated border. The temperature was 40° C. He was ordered cold baths and sweet spirits of nitre.

On the fourteenth of June the movements were tarry. At this time the induration and redness had extended to the lower abdomen, both buttocks, the back of the thighs and the anterior surface of the right thigh. There were ecchymoses on the shoulders. The temperature was 38° C.

On the fifteenth the thighs were harder but the process had not extended on the legs. The prepuce was œdematous. The process had, however, now involved the forearms. The temperature was 37.9° C. He was nursing well, the vomiting had ceased and there was no bleeding from the mouth. His general condition was good.

On the sixteenth the calves were involved to the ankles and the forearms to the wrists. There was more œdema of the prepuce. The temperature was 37.4° C.

On the eighteenth the feet and hands were the parts most involved. There was, however, a beginning dry gangrene of the penis. He was taking his food well, was not vomiting and was having normal movements. The temperature was 37.6° C. His general condition was not as good, however, and anxiety as to the outcome was then first entertained. The brandy, which he had been taking for several days, was increased.

He failed rather rapidly during the nineteenth and died suddenly the morning of the twentieth.

The interesting features in this case are the origin of the infection, the bleeding from the mouth, the rapid progress of the local process, the mildness of the constitutional symptoms, the low temperature and the fatal outcome after the local process had practically run its course.

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A CASE OF SUB-ACUTE DUODENAL INDIGESTION  
AT FOUR WEEKS.

RURUS A. was the first child of healthy parents. He was born at full term after a normal labor. He was well developed and nourished at birth. There was but a very slight trace of yellow-



ness of the skin after birth. He was given the breast alone for a few days, but as the supply of milk was insufficient, was also given a mixture of cows' milk and water with milk sugar. This was continued for three weeks when Mellin's food was given in place of the breast and cows' milk. The vomiting nevertheless continued and he soon began to turn yellow. Consequently at the end of a week and a half the Mellin's food was stopped and he was put back on cows' milk and water. The vomiting and jaundice persisted and after a week he was given condensed milk and water, one part of the milk to fourteen of water. After this the vomiting diminished but the jaundice continued. During these changes he lost flesh rapidly. He had no colic. The dejections, so the mother stated, varied in consistency, were generally green and at times contained curds, but no mucus or blood. Her observations were probably faulty. The urine was passed frequently, was green or yellow in color and stained the napkins yellow. The child slept well and there was no fever.

He was brought to the Out-Patient Department of the Infants' Hospital May 6, 1898. He was then seven weeks old. The jaundice must have appeared, therefore, when he was about four weeks old. He was poorly developed and emaciated. The fontanelle was level. The tongue was moderately coated. There was deep jaundice of the skin and conjunctivæ. The chest was negative. The abdomen was rather full but showed no evidences of fluid. The superficial veins were not dilated. The liver was slightly enlarged, the surface smooth and the edge sharp. The tip of the spleen was just palpable. There was a small umbilical and a left inguinal hernia, both easily reducible. The urine was brownish and stained the diaper yellow. The stools were formed, smooth, clay-colored, very foul and contained considerable mucus. The temperature was normal.

Icterus neonatorum was ruled out by the late appearance of the jaundice, the presence of bile in the urine, the clay-colored stools and the digestive disturbance. Septic infections, including Winckel's Disease and Weil's Disease, were ruled out by the absence of a source of infection, the absence of hæmorrhages, the clay-colored stools, the normal temperature and the long course. Syphilitic hepatitis was excluded on the absence of a syphilitic history and of other evidences of syphilis and on the absence of symptoms of portal obstruction. Ordinary cirrhosis was ruled

out because of the small size of the spleen and the absence of signs of portal obstruction. This left as the cause of the trouble some obstruction of the common bile duct. Congenital absence of the bile ducts was ruled out on the late appearance of the jaundice and the fact that the jaundice was preceded by marked digestive symptoms. Stone in the common duct was ruled out by the early onset of the symptoms of indigestion and by the absence of any attack of pain. Thus by a process of exclusion a diagnosis of catarrhal jaundice, or duodenal indigestion, was reached. In fact, the history and physical examination are characteristic of this condition. The unusual point is the early age of the patient.

Calomel and small doses of brandy were ordered. He was also ordered a modified milk, containing the lowest percentage of fat with a low percentage of sugar and a high percentage of proteids. The alkalinity was 20 per cent and ten feedings of two ounces were to be given in twenty-four hours.

The child was not brought back to the hospital. He was locked up at his home, however, on May twenty-seventh. The treatment prescribed had not been followed, but they had at once called in an outside physician. He had put the child on Horlick's Malted Milk, apparently about as unsuitable a food for this condition as could have been found. Nevertheless, the child had improved *greatly* and the jaundice had nearly disappeared.

317 Marlboro Street, Boston.

## THE DURATION OF INTUBATION IN CURED DIPHTHERIA CASES BEFORE AND AFTER THE SERUM TREATMENT.\*

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Translated from the German with the special sanction of the author.

BY

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As regards the duration of intubation in cured cases, authors have hitherto written but little, although it would be of practical importance to determine the average duration of intubation and to estimate its minimum and maximum on the basis of many successful cases. For with the aid of these data, besides obtaining the percentage of recoveries, we are best able to compare tracheotomy with intubation. Moreover, these figures make possible to us, a general method of establishing the bearing which the time of wearing the tube may have upon the ulcerations that appear in intubated diphtheria cases. By solving this problem, we shall also obtain, of course, the answer to the question, when is the proper time for the performance of secondary tracheotomy, on account of the possible appearance of decubitus?

As I performed intubation † in 763 diphtheria cases, obtaining 268 recoveries in all, from August of the year 1890, to July 1, 1895, I have determined to enter into a discussion of the foregoing questions, and as, out of the hospital material above mentioned, 90 cases with 45 recoveries were treated after the introduction of serum-therapy, I might also attempt to investigate the question, how does the serum-treatment affect the duration of intubation in cured cases?

\*Delivered at the annual meeting of the Gesellschaft der Kinderärzte at Lübeck, in September, 1898.

†During the space of five years, primary tracheotomy was performed in this hospital in four or five cases only.

Before venturing upon a discussion of the questions advanced, on the ground of my observations, I will insert here some literary data more worthy of mention, which bear upon this subject.

Dillon Brown,\* O'Dwyer's colleague, places the average moment for final extubation at 5 days and  $3\frac{1}{2}$  hours, that is, at  $123\frac{1}{2}$  hours.

In the following table, Mount Bleyer compiled his experience with regard to final extubation, for the Berlin International Congress, held in 1890. Final extubation was performed upon his 189 cured cases:

On the 1st day in 5 cases	
" " 2nd " " 29 "	} 79 1-3 per cent.
" " 3rd " " 37 "	
" " 3 1-2 " " 14 "	
" " 4th " " 43 "	
" " 5th " " 22 "	
" " 6th " " 10 "	} 20 2-3 per cent.
" " 7th " " 13 "	
" " 9th " " 6 "	
" " 10th " " 4 "	
" " 11th " " 3 "	
" " 15th " " 2 "	
" " 20th " " 1 case	

Mount Bleyer, therefore, performed final extubation within 120 hours in 79 1-3 of his cured cases, and the remaining 20 2-3 per cent wore the tube longer than five times 24 hours.

According to G. Baer,† final extubation, in 30 cases cured in the Zürich Children's Hospital, took place at the following intervals:

The tube was finally removed:

Once on the 1st day = 3.2 per cent.	} 64.5 per cent.
5 times " " 2nd " = 16.2 " "	
6 " " " 3rd " = 19.3 " "	
3 " " " 4th " = 9.6 " "	
5 " " " 5th " = 16.2 " "	
Once " " 6th " = 3.2 " "	} 35.5 per cent.
3 times " " 8th " = 9.6 " "	
2 " " " 9th " = 6.5 " "	
2 " " " 10th " = 6.5 " "	
Once " " 33rd " = 3.2 " "	
" " " 34th " = 3.2 " "	
" " " 52nd " = 3.2 " "	

\*The Medical Record, June and July, 1887.

†Gustav Baer, *Tracheotomie und Intubation in Kinderspital Zürich*, Inaugural Essay, Leipzig, 1892.

In the Zürich Children's Hospital, therefore, 64 5-10 per cent of the cured cases were finally extubated within 120 hours, and 35 5-10 per cent, after 120 hours.

Professor v. Ranke,\* before the serum-treatment, compiled his observations as follows: Final extubation was performed:

Within 24 hours in 8 per cent. of cured cases									
"	48	"	"	26	"	"	"	"	"
"	72	"	"	18.5	"	"	"	"	"
"	96	"	"	20	"	"	"	"	"
Over	96	"	"	27.5†	"	"	"	"	"

} 72.5 per cent.

In von Ranke's material, therefore, 72. 5 per cent of the cured cases were permanently extubated within 96 hours.

In conclusion, I would mention that Heubner,‡ according to his Leipzig experience (25 cured cases), settles the average duration of intubation before the serum-period, at 100 hours.

The time since the introduction of the serum-treatment has placed scarcely any literary data relating to this subject, at our disposal. In 10 intubation cases by Heubner,§ the average period in connection with serum-treatment amounted to 37 hours, in von Ranke's material,§ in the serum-treatment, the tube was finally removed:

Within 24 hours in 18.5 per cent. of cured cases.									
"	48	"	"	48.1	"	"	"	"	"
"	72	"	"	11.1	"	"	"	"	"
"	96	"	"	10.0	"	"	"	"	"
Over	96	"	"	3.7	"	"	"	"	"

Of my 673 intubation cases, performed in the period before serum-therapy, 223 recovered, that is to say, 33 1-3 per cent. The duration of intubation in these cured cases amounted to the following:

$\frac{1}{4}$  hour,  $\frac{1}{2}$  hour, 1 hour (2 cases),  $1\frac{1}{2}$ , 2, 6,  $6\frac{1}{2}$ , 9, 10 (3 cases), 11, 15 (2 cases),  $17\frac{1}{2}$ , 18 (2 cases), 27,  $28\frac{1}{2}$ , 29, 30 (2 cases), 31, 33 (2 cases), 35, 36 (6 cases), 37 (2 cases),  $38\frac{1}{2}$ , 39 (2 cases), 40, 41 (4 cases), 42 (3 cases), 43 (3 cases), 44 (3 cases), 45 (3 cases), 46 (2 cases), 47 (6 cases),  $47\frac{3}{4}$ , 48 (6 cases), 49 (2 cases), 50 (2 cases), 51 (3 cases), 52 (3 cases), 53,  $53\frac{1}{2}$  (2 cases), 55 (2 cases), 56 (2

\*H. v. Ranke, Münchener med. Wochenschrift, 1895, No. 8.

†Falsely given in the article as 36 per cent.

‡O. Heubner, Klinische Studien über die Behandlung der Diphtherie. Leipzig, 1895.

§l. c.

# DURATION OF INTUBATION IN CURED DIPHTHERIA. 333

cases), 57 (2 cases), 58 (3 cases), 58½, 59, 60 (3 cases), 60½, 62  
62½, 63 (4 cases), 64 (3 cases), 64½, 65 (5 cases), 66, 67, 67½, 68,  
68½ (2 cases), 69, 69½ (2 cases), 73½, 74 (2 cases), 75½, [76], 77, 78  
(5 cases), 79, 80, 85, 86, 87½, 88, 90, 91 (2 cases), 92, 92½, 93,  
94 (2 cases), 95, 96 (3 cases), 96½, 97, 98 (2 cases), 100, 101, 104,  
106, [107], 108, 110, 112, 114, 120, 121½, 124, 129 (3 cases);  
130, 131 (3 cases), 133 (2 cases), 134, 135, 136, 140, 142, 143,  
143½, 144, 145, 151, 153, 154, 157, 161½, [181], 184, 213, 217,  
218, [227], [240], 243, 247, 273 (2 cases), [276], [300], 349,  
353, 360, [400].

Of these 223 cases, only 8 required the further operation of  
tracheotomy (the figures in brackets)\*; if we deduct these, we  
obtain the number of cases which were cured by intubation alone,  
215 in all. In these 215 cured cases, intubation lasted:

From 1-4	to 24 hours	in 27 cases	= 12.55 per cent.	} 82.33 per cent.
" 24	" 48	" 56	" = 26.04 " "	
" 48	" 72	" 52	" = 24.18 " "	
" 72	" 96	" 29	" = 13.50 " "	
" 96	" 120	" 13	" = 6.06 " "	} 17.67 per cent.
" 120	" 144	" 21	"	
" 144	" 168	" 6	"	
" 168	" 192	" 1 case	"	
" 192	" 216	" 2 cases	"	} 17.67 per cent.
" 216	" 240	" 1 case	"	
Over 10 days		" 7 cases		

Total, 215 cases.

The minimum duration, therefore, in my cured cases amounted  
to ½, 1, 1½, 2, 6, 6½, and 9 hours, the maximum period, 217,  
218, 243, 247, 273, 349, 353, and 360 hours.

My more interesting accounts of cases relating to the question  
under discussion are as follows.

CASE I.—Alexander S., ten years old, admitted October 9. Ill  
since October 1, with mild symptoms of faucial diphtheria. On  
account of severe attacks of suffocation, he was intubated October  
9, at his home in Kerepes, not far from Budapest. At this time  
an insular coating of slight extent was visible, on the left tonsil  
only. Immediately after intubation, the patient expectorated a  
copious purulent substance, which contained a small piece of  
croup-membrane. The breathing became perfectly free. A few

\*Of my 673 cases prior to the serum-treatment, I performed sec-  
ondary tracheotomy on 25 patients.

minutes later he expectorated the tube. As the breathing continued sufficiently clear, no reintubation was made, but the patient was removed to the hospital for further treatment. On October 10, the patient breathed perfectly easy, but was aphonic. On October 14, the fauces were clean, the voice still a little hoarse. On October 15, he left the hospital, cured. (Isolation continued at home by the parents.) The duration of intubation was barely a quarter of an hour.

CASE II.—Rosa K., six years old, admitted August 26, 1892. Faucial diphtheria since the 19th, hoarseness and difficult breathing for three days. A small patch on the left tonsil. Moderate stenosis. On the 29th, marked increase of stenosis, intubation. The proper tube immediately coughed out, tube a size larger used. Half an hour later this tube was also expectorated. After that stenosis moderate, so that no reintubation was attempted. On the 30th, cough loose, stenosis minimal. On September 4, the breathing is unobstructed, the voice still a little hoarse. September 9, cured. Intubation period, one-half hour.

CASE III.—Stefan H.,  $2\frac{1}{2}$  years old, admitted April 25, 1893. Ill since the 22nd, hoarse, labored breathing. Throat clean when admitted, but very severe stenosis present so that intubation had to be performed immediately. After the expectoration of a copious purulent secretion the breathing became perfectly free. After the expiration of an hour he expectorated the tube. Reintubation is not necessary. *Minimal* stenosis some days longer. Discharged May 14, cured. The period of intubation was one hour.

CASE IV.—Koloman R., five years old, was admitted October 26, 1891. On October 19, taken ill with faucial diphtheria, has breathed with difficulty for one day. Throat clean when admitted, stenosis severe. At 6 o'clock in the evening, intubation is performed. The dyspnœa entirely disappears after intubation. At 7 o'clock in the evening, the tube is coughed out. October 27, the patient passed the night without the tube very quietly. The stenosis moderate. October 30, still without the tube, breathes quietly. The voice is hoarse. November 8, the voice still slightly impaired, in other respects cured. The duration of intubation amounted to one and a half hours.

CASE V.—Charlotte K.,  $3\frac{1}{2}$  years old. Admitted June 27, 1892. Alleged sore throat for two days; extensive faucial diph-

theria, moderate stenosis. The stenosis *increased considerably* in the afternoon, so that at 6.30 P. M., intubation had to be done. She expectorated a copious viscid, purulent mucus, and soon after coughed up the tube also. Reintubation was immediately performed, and the breathing became perfectly clear. Two hours after she again coughs out the tube. The breathing, however, remains unimpeded, on that account reintubation is not attempted. On July 3rd, the throat was clean, the breathing free. On July 10, complete recovery. Period of intubation, two hours.

CASE VI.—Irene T., five years old, admitted on the morning of January 24, 1892. Ill for two days. Moderate faucial diphtheria and stenosis of the middle grade. Stenosis gradually increasing until intubation was performed at 5.30 P. M. At 7 o'clock in the evening she expectorated the tube. Until the 26th she breathed quite easily without the tube. On the afternoon of the 26th, the stenosis again appeared in a severer degree. In the evening at 11 o'clock, reintubation necessary. On the morning of the 27th the patient expectorated the tube. The breathing, however, was free. Discharged on February 27, cured. The tube was retained in the trachea  $6\frac{1}{2}$  hours.

CASE VII.—Ferdinand A., seven years old, admitted February 2, 1894. Sick for a week. Stridulous breathing for two days. Moderate diphtheritic process in fauces. Intubation February 2, forenoon, at 10 o'clock. The breathing becomes perfectly free. The patient expectorates the tube in the evening at 7 o'clock. Reintubation no longer necessary. On February 20, paralysis of the palate appeared. Discharged on the 25th, cured. The tube was worn nine hours.

CASE VIII.—Felix St., four years old, admitted February 27, 1892. Hoarseness for nine days. The throat is clean. Moderate stenosis, which increased by evening to such an extent that intubation had to be performed at 9.30 P. M. On February 27, at 9.30 in the forenoon, he expectorated the tube. Reintubation no longer necessary. During the course of the disease, scarlet fever appeared, followed by acute nephritis. Discharged on March 27, cured. The tube lay in the trachea ten hours.

CASE IX.—Bertha K., aged 14 years, admitted August 24, 1890. Ill for three days. Throat clean, breathing decidedly stenotic. Intubation performed in the afternoon at two o'clock. After intubation a large mass of tenacious purulent mucus was



ejected. Albuminuria in a mild form. At 12 o'clock at night, she coughed out the tube. Reintubation unnecessary. On the 27th, the patient can already be considered cured. The period of intubation amounted to ten hours.

CASE X.—Michael T., two years old, admitted July 1, 1891. Ill for two days. Middle grade of faucial diphtheria, medium stenosis. On July 2, the difficulty in breathing had increased to such an extent that intubation had to be performed at 7 o'clock in the morning. In the forenoon, at 11 o'clock, he drew out the tube by means of the thread and breathed quietly until 11 o'clock in the evening. On account of progressive dyspnoea, reintubation was done at 11 P. M. At half past two o'clock in the night, the tube was expectorated. Reintubation on July 3, at half past twelve o'clock in the afternoon; at three o'clock in the afternoon he again drew out the tube. Reintubation no longer necessary. On the 18th, discharged cured. The tube was worn ten hours in all.

CASE XI.—Irene Oe., four years old, admitted October 19, 1892. Hoarse for three days, difficulty in breathing since the preceding day. Recovered from *diphtheritis faucium*. The stenosis is so severe that intubation is performed immediately. After intubation, a copious muco-purulent secretion is ejected, and with it a small piece of croup-membrane. The breathing became perfectly clear. Abundant albumin in urine. During the course of the disease, extubation was done seven times. The eighth extubation was the final one (on November 13). During convalescence a retropharyngeal abscess developed, which ruptured spontaneously. Complete recovery. The tube remained in the trachea 349 hours ( $14\frac{1}{2}$  days) in all.

CASE XII.—Ludmilla D., girl of two years, admitted August 20, 1891. Ill for one day. Follicular inflammation of both tonsils, very severe laryngo-stenosis. Intubation at 4 o'clock in the afternoon. After intubation, breathing perfectly clear. During the progress of the disease the patient expectorated the tube seven times, extubation was attempted eight times, therefore she was intubated sixteen times. Final extubation on September 5. On September 13, discharged, cured. The tube lay in the trachea, with trifling interruptions, almost 15 full days, or 360 hours.

According to these data, therefore, more than half of my cured

cases (135), that is, 62.77 per cent, were extubated within 72 hours; between 72 and 120 hours, 19.56 per cent were extubated; after 120 hours, 17.67 per cent of my cured cases were still wearing the tube, and final extubation was not performed upon seven until after 240 hours.

If I sum up as a whole, the intubation period of my cured cases (17,050½ hours), and divide by the number of cases (215), I obtain the average duration of intubation; in my material before the serum-treatment, this average amounted to 79 hours. I must lay special stress on the fact, that in the hospital under my direction the first attempt at extubation is not made until the expiration of 48 hours (extubation by means of the thread); the circumstance, that in 12.55 per cent of my cases the total period of intubation did not exceed 24 hours, is explained thus: in these cases, the patient either expectorated the tube or extubated himself by means of the thread, which is always left attached to the tube, and a new operative procedure became unnecessary on account of remission or cessation of the stenosis.

Of the 90 patients intubated in the serum-period, 45 were cured, that is, 50 per cent. In these cases, the duration of intubation was as follows:

1 hour, 7 hours, 12 hours, 13, 17, 19, 22, 24, 25 (2 cases), 29, 32, 35, 42 (2 cases), 43, 44, 45, 46, 47, 48 (6 cases), 50 (2 cases), 57, 65, 68, 69, 70, 71, 78, 81, 88 (2 cases), 104, 108, 133, 150, 154, 160, [183].

Among these 45 cured cases secondary tracheotomy was subsequently performed upon one [183 hours];\* this single case deducted, 44 remain treated with intubation alone, in addition to serum.

The period of intubation in these 44 cured cases amounted to:

1 to	24 hours in	8 cases	—	18.18 per cent.
24	“ 48	“ “ 18	“	— 40.90 “ “
48	“ 72	“ “ 8	“	— 18.18 “ “
72	“ 96	“ “ 4	“	— 9.09 “ “
96	“ 120	“ “ 2	“	— 4.54 “ “
120	“ 144	“ “ 1 case	—	2.27 “ “
144	“ 168	“ “ 3 cases	—	6.84 “ “

—  
Total. 44 cases.

\*Among my 90 cases occurring in the serum-period, I performed secondary tracheotomy in four cases only.

In this group of my patients, therefore, the minimum of the duration of intubation amounted to 1 and 7 hours; in the maximum, to 150, 154 and 160 hours.

The relatively more interesting cases which I treated are the following:

CASE I.—O. S., 14 years old, admitted January 14, 1895. Ill for five days. Well developed girl. Insular coating in fauces, stenotic breathing. Axilla temperature  $38.^{\circ}1$  C. 10 c.c.m. Roux's serum. In the evening increased stenosis and cyanosis. At 7 o'clock in the evening, intubation. After one-half hour the tube is expectorated, simultaneously with expulsion of several pieces of croup-membrane. Breathing became free. On January 15, the throat affection is better, the night was passed quietly. In the morning at ten o'clock, the dyspnœa is again so urgent as to necessitate intubation. At half-past ten in the forenoon, the tube was expectorated. Severe albuminuria. Again 10 c.c.m. Roux's serum. On January 16, the throat is clean, the breathing slightly difficult. Amount of albumin in urine is less. On January 18, 5 c.c.m. of serum is administered, as the breathing continues stridulous. On January 20, the albumin has disappeared from the urine, the breathing clear. On January 23, an eruption of the skin, resembling that of measles, developed without fever symptoms, but disappeared on the 25th. On January 28, slight paralysis of the palate. On January 31, cured. Period of intubation, one hour. 25 c.c.m. Roux's serum.

CASE II.—Three-year-old girl, admitted October 10, 1894. Ill for three days. Extensive faucial diphtheria, badly swollen tonsils. Severe laryngo-stenosis. On admission (at midnight), immediate intubation and injection of 1,000 units of Behring's serum. Several extubations on account of detached pseudo-membranes. On the morning of October 11, 500 units of serum; the child drew out the tube. Breathing only moderately difficult, therefore no re-intubation. On October 13, 600 units of serum. Laryngo-stenosis disappearing. No albuminuria. On October 14, the breathing clear, throat almost clean, swelling of the glands of the throat still to be felt. On October 15, the glands no longer swollen, fauces clean. The period of intubation amounted to seven hours. 2,100 units of Behring's serum used.

Of my cured cases, therefore, 77.26 per cent (34 cases) were finally extubated within 72 hours; between 72 and 120 hours,

13.63 per cent of cases were extubated; after 120 hours, 9.11 per cent of my cured cases were still intubated.

The data obtained in the period before the serum-treatment and also during the serum-therapy are placed beside each other in the following table:

	Before Serum-period.	Serum period.
Duration of Intubation.	Percentage of cured cases.	Percentage of cured cases.
1-4 to 24 hours	12.55	18.18
24 " 48 "	26.04	40.90
48 " 72 "	24.18	18.18
72 " 96 "	13.50	9.09
96 " 120 "	6.06	4.54
120 " 144 "		2.27
144 " 168 "		6.04
168 " 192 "	17.67	
192 " 216 "		
216 " 240 "		

the table shows plainly that the number of patients extubated in the serum-period during the first and second 24 hours, increased to a marked degree.

The average duration of intubation in this group of my cases (2,683 hours, 44 cases) amounted to 61 hours, in contrast to the 79 hours of the period before serum-therapy. Therefore, serum-treatment reduced the average duration of intubation in my cured cases about 18 hours.

After the enumeration of all these data, let us see by comparison when the canule can be finally removed if tracheotomy has been performed.

E. Köhl, who describes in detail the difficulties in removing the canula after tracheotomy, in consecutive numbers of the *Archiv für klinische Chirurgie*, for the year 1887, compiled, approximately, 800 cured cases, tracheotomized for diphtheria. He forms the opinion from the study of these cases that one has no right to speak of difficulty in removing the canula, unless it cannot be finally removed at the expiration of three weeks. In this compiled material, the canula was finally removed on the third day, in 24 cases; on the fourth day, in 71 cases; on the fifth day, in 94 cases; between the sixth and tenth days, in the majority of cases, that is to say, in more than 300 cases (37½ per cent), and between the tenth and thirtieth days, in 200 cases (25 per cent).

Fifty patients, approximately, wore the canula from one to twelve months, and in conclusion, Köhl mentions several cases in literature, in which it was impossible to remove the canula for good, in patients cured of laryngeal diphtheria.

My own experience relative to the final removal of the canula are in brief as follows:\*

In the majority of my cases (84 per cent), I succeeded in removing the canula within ten days, most frequently on the sixth or seventh day. In  $23\frac{1}{2}$  per cent of my cases, the canula could be finally removed within five times 24 hours.† If we compare these figures with those acquired in the same direction in intubation, we cannot fail to observe the immense difference in results.

As there are always physicians who prefer tracheotomy to intubation in the practical treatment of diphtheritic stenosis, it is, perhaps, not entirely in vain to point out these differences more definitely.

My data, previously given in detail, show, as we have seen, that the average duration of intubation in my material amounted to 79 and 61 hours respectively, and that the majority of my cases (83.8 per cent) were extubated within five times 24 hours. A comparatively large number would have been intubated longer than five times 24 hours, save that the too prolonged wearing of the tube might have become dangerous to the patients. For as no severe decubitus developed in either larynx or trachea in all these cases, we may safely conclude that the final extubation proved a success, and that we avoided secondary tracheotomy.

If we tabulate the successful cases of Mount Bleyer, G. Baer, and my own, and compare them from this point of view, we obtain the following data:

Name of the observer.	The number of cases cured by intubation.	In how many cases was final extubation performed within 120 hours?	What per cent. of collective cures?	In how many cases was final extubation performed after 120 hours?	What per cent. of collective cures?
M. Bleyer	189	150	79.3	39	20.7
G. Baer	31	20	64.5	11	35.5
J. Bokay	259	217	83.8	42	16.2
	479	387	80.8	92	19.2

\*This experience was up to August, 1890. From this time on, I performed primary tracheotomy only in a few cases.

†I am sorry to say that I do not know the statistics compiled by Professor Bose (Giessen), which he acquired from the performance of tracheotomy during the serum period.

According to the table, out of 479 cured cases, three authors successfully treated 92 (that is 19.2 per cent of the cases) later than five times 24 hours.

The maximum length of time of wearing the tube, in my cases, was, as before stated, 360 hours: seven of my patients were intubated over 240 hours. That diphtheria patients can sometimes wear the tube without danger even beyond this moment is proved by the intubation material of the Zürich Kinderspital,\* in which we find three cured cases, the patients having been intubated 33, 34 and 52 days respectively, or 792, 816 and 1,248 hours. Final extubation was then performed.†

The question is, then, whether the fact that severe decubitus may appear in the course of the intubation, sufficiently confirms the opinion that secondary tracheotomy should be performed in order to avoid this complication, if the tube cannot be finally removed in from four to five times 24 hours. It was known that Escherich‡ first made public this view in 1891, and V. Ranke and Heubner are of the same opinion, as the reports of last year's Wiener Wanderversammlung show.§

In a discussion of Escherich's view at Halle in the year 1891, I called particular attention to the fact that a sufficiently large number of our diphtheria patients were cured without secondary tracheotomy, although the period of intubation was longer than five times 24 hours. I was pleased to observe that Biedert took the same attitude on the question under discussion in the Wanderversammlung, held in Vienna last year. It is interesting to note that, while in Europe the dread of the development of decubitus has led several intubators to perform secondary tracheotomy very frequently, O'Dwyer and his school but seldom

\*Wiener Klin. Wochenschr. 1891. No. 7, 8.

†l. c.

‡I will briefly report here the progress of the disease in the case in which the patient wore the tube 52 days, as I am the only one who mentions it in literature: S. O., two-year-old child, admitted into the Zürich Kinderspital, March 15, 1889. Fever, cough and dyspnoea since the preceding day. Stridulous breathing to a high degree. Diagnosis: Diphtheria of the fauces and larynx. March 15, intubation at 12 o'clock, midday, after which the breathing immediately becomes clear. During the course of the disease, pneumonia, scarlet fever and paralysis of the larynx develop. The entire length of time which the tube was retained amounted to 52 days. The longest continuous wearing of the tube was 96 hours. Intubated 24 times in all. May 18, discharged cured. The voice perfectly clear after two months.

§Archiv. für Kinderheilkunde, XVIII Vol. Numbers 3 and 4. Pages 210 to 214.

performed secondary tracheotomy. In the statistics of 503 intubation cases (with 143 cures) performed in America, and published by Dillon Brown\* in 1887, we find 11 cases in which the patients were cured after being intubated ten days and over, without the necessity of performing secondary tracheotomy on account of decubitus.

Galatti, in his interesting series of articles on intubation† in the year 1894, in discussing the question, when ought secondary tracheotomy to be performed, writes as follows: "Several authors claim that if the stenosis has not disappeared after four times 24 hours, tracheotomy ought to be performed; this may have resulted from the belief that the longer the tube is retained, the sooner decubitus will develop. Now, what I wish to know is, why they have decided on just four days? As we shall more fully discuss later, there are certain cases in which decubitus appears in a few hours, others after some days and just as many cases of extended intubation where decubitus is entirely wanting. So the space of four days is grounded neither on experience nor theory." For my part, I think it useless to discuss Galatti's remarks, since we, in possession of a large amount of material, can observe daily from an autopsy on fatal cases, everything that Galatti states concerning the time of the development of decubitus. According to my opinion, no definite time can be determined, when secondary tracheotomy should be performed on account of decubitus. I go even further and claim that fear of the development of decubitus is no indication for performing secondary tracheotomy. I consider tracheotomy apart from other considerations, necessary in intubated cases, only when I am convinced of the existence of severe decubitus. He who is not hasty in attempting this bloody procedure, will be assured often enough of the recovery of patients who are intubated more than five times 24 hours, without tracheotomy.

After all this, I sum up my report in the following points:

1. The moment for final extubation is not confined within narrow limits, - according to my experience, from one-quarter to 360 hours.
2. The average duration of intubation in my hospital, amounted to 79 hours before the serum-period, but during

\*l. c.

†D. Galatti. *Die Intubation in der Privatpraxis*, Wien, Perles, 1894.

the serum-period to only 61 hours; in my material, therefore, the serum-therapy reduced the average length of intubation 18 hours.

3. In consideration of the fact that in 16.2 per cent of my cured cases, the duration of intubation was more than 120 hours, I cannot share the opinion of those authors who desire to advance the proposition that tracheotomy must be performed, for the avoidance of severe decubitus, if the patient is not finally extubated within five times 24 hours. I believe that no definite time can be appointed for secondary tracheotomy, and that the convincing presence of a severe decubitus indicates the bloody procedure, but fear of the appearance of decubitus is by no means an indication.

## PHILADELPHIA PEDIATRIC SOCIETY.

FREDERICK A. PACKARD, M.D., IN THE CHAIR.

December 13, 1898.

DR. BERTHA LEWIS and DR. F. MASSY exhibited a girl ten and a half years old with a deformity of the chest. The left side was flattened anteriorly, and markedly concave posteriorly; there was also a rotary lateral curvature with a right dorsal major curve and left lumbar rotation. These conditions were induced by the inactivity of the muscles of the entire left side of the trunk, consequent upon the absence of all active lung tissue on that side, and the excessive work done by the right lung and the muscles of the right side of the trunk. The history showed the child to have had catarrh of the lungs when eight months old, but no definite history of pneumonia could be gained.

The heart was drawn well over to the left side, the absolute and relative dulness being almost the same.

### DISCUSSION.

DR. E. E. GRAHAM.—I am very much interested in the exhibition of this case, but my interest is more in the line of treatment than in the actual diagnosis in this special child. I should like very much, if the other members would care to see it, to have Dr. Lewis show us the movements this child has been asked to



go through. A number of these cases are seen at all clinics and their treatment is generally very unsatisfactory; the child is given a tonic or sent to an orthopædic surgeon, who rarely has time to devote to it, or it is sent to a manipulator, if the parents are able to pay for such instruction. I think the movements this child is asked to go through would be extremely interesting to witness.

DR. S. M. HAMILL.—The cardiac condition in this case suggests the report of a case which I abstracted from one of the English journals a few days ago. There was an area of pulsation on the right side of the chest in the fifth interspace just within the midclavicular line. Over this area the heart sounds seemed to be of normal loudness. The area of cardiac dullness seemed to be entirely to the right of the sternum, but could not be delimited on account of the almost complete tubercular consolidation of the right lung. There was an absence of pulsation and dullness in the normal area with very feeble sounds. At the autopsy the heart was found in the normal position. It was completely covered by the hypertrophied left lung, which extended to the median line. The upper lobe of the right lung was occupied almost entirely by a large cavity, and the lower lobe was consolidated. The abnormal location of the sound was supposed to depend upon transmission through the consolidated lung, augmented by the resonating effect of the adjacent cavity. The cause of the abnormal impulse was not revealed. In the case under consideration there is doubtless some pulmonary condition to account for the extensive abnormal pulsation.

DR. LEWIS then demonstrated movements with the child.

DR. S. M. HAMILL.—I should like to ask Dr. Lewis if in cases similar to this, where such a course seems indicated, she gives any movements directed to the development of certain groups of muscles.

DR. LEWIS.—We do later on when we have under control the co-ordinated movements of the lower extremities so that the child can assume the upright position and maintain that correctly. I think it a mistake to begin asymmetrical movements until you have pretty good control of the extremities with symmetrical movements. So with spinal curvature; I never go on with asymmetrical movements until I have obtained a fair degree of muscular tone and development with the symmetrical movements.

DR. F. MASSEY.—I have watched this case carefully for two

months. More expansion of the lung and covering of the heart has been accomplished in the last three weeks than in the previous month.

DR. E. E. W. GIVEN exhibited a case of CRETINISM. The family history was negative, with the exception of a record of pronounced alcoholism in both parents. There was no history of goitre in the family, but an indefinite history of goitre in the neighborhood in which the child was born (Ireland) was elicited. The child's infancy had been without any notable abnormality, excepting that it was always easily provoked to anger. When seen in its twelfth year it held its mouth open; the tongue protruded somewhat between the lips, but was not enlarged. The thyroid gland could not be felt. The skin was rather thick and rough. The hair, however, was fine and silky. The fingers were thick and clumsy, and were the most marked evidence of cretinism that the child exhibited with the exception of weakly mental condition, which was about equal to that of a child of seven or eight years of age; and its small stature, its height being but 101 cm.; its weight, too, was but forty-six pounds. The temperature, taken at various times, was usually about  $100^{\circ} 2-5$  F.; the pulse averaged about 128; and the respiration 26. It was put upon thyroid upon November 29, and this was continued until the time of the report. Upon this treatment four pounds had already been gained. The child slept better; ~~its~~ appetite was better; and bowel movement had occurred every day.

#### DISCUSSION.

DR. ROBERTSON.—I had the opportunity of watching this case with Dr. Given in my service at the Episcopal Hospital and it seemed to me that we could never dogmatically assert that this is a case of cretinism; certain it is it does not conform to the mind picture suggested by the word cretin. It certainly is a case of dwarfism. I think we are justified in treating it with thyroid, however, for such cases of infantilism bear the same relation to cretinism that gigantism does to acromagaly, that is, in both cases they are due to some aberrant glandular function in the one case of the thyroid, in the other of the pituitary. Still there are grounds for regarding this as a case of cretinism, the pendulous abdomen, the large and broad hands and feet, the history of the

child having at one time gaping mouth, the impaired intellect, then, again, the fact that the thyroid is probably diminished in size. There is no telling what the histological structure of the gland is. It may be and usually is enlarged in the endemic forms, but in the sporadic forms the thyroid is much diminished in size. That some thyroid function exists, however, is unquestionable, but it seems to me we can only come to a conclusion after the therapeutic test, the use of the thyroid gland.

DR. D. L. EDSALL.—I am interested in the possibility of thyroid treatment having been administered before Dr. Given saw this case, and would ask him whether he has been able to learn whether thyroid extract has been administered or not. I have seen a number of cases of cretinism that have been under thyroid treatment for periods varying from several months to several years before I first saw them, and I am sure had I not known that thyroid extract had been given them, I should have been in quite as much doubt as to the diagnosis as Dr. Given expresses in regard to the case which he presents.

DR. GIVEN.—As far as Dr. Edsall's question is concerned I have no answer, as I do not know whether thyroid gland was ever given before I prescribed it. I believe, however, that the child had never had any treatment before it was brought to the dispensary of the Episcopal Hospital, and it was brought there chiefly because its stature was so slight that the parents felt ashamed to admit to their friends that the child was 12 years of age.

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DR. D. L. EDSALL reported a case of DILATATION OF THE COLON in a girl 10 years of age. The condition of the child upon admission to the hospital was that usually seen in severe dilatation of the colon, the abdomen being enormously distended, and the child's health having suffered severely during the past six months. The condition was due to excessive replication of the sigmoid, a long fold running over to the right and causing a sharp kink in the bowel and thus a certain degree of obstruction. Treatment overcame the condition entirely for the time that the child was under observation and her health improved greatly. Dr. Edsall expressed the opinion that abnormal folding of the large bowel was a cause of dilatation of the colon that must be considered of importance.

DR. EDWIN E. GRAHAM reported a case of ILEO-COLITIS SIMULATING INTUSSUSCEPTION, in a child aged six years. The child was delicate and nervous and had a history of long standing indigestion and constipation. When first seen on October 5, 1898, she had been ill two days with fever, nausea, and diarrhœa. She had had eighteen stools in the previous twelve hours consisting of blood and mucus, and there had been marked tenesmus and moderate pain. No fœcal matter had been passed. There was no abdominal tumor, and the abdomen was relaxed.

During the succeeding thirteen days the child's condition remained good, and the number of stools gradually diminished, but their character remained unchanged. Gas was passed a number of times, but no fœcal matter. There was no abdominal distension, no tumor, and no evidence of collapse.

On October 7, 1898, the index finger passed into the rectum disclosed a condition as follows: The tip of the finger if kept in contact with the mucous membrane entered a cul-de-sac about one-half inch deep; this cul-de-sac was easily followed about the entire circumference of the bowel, the central portion of the lumen of the bowel being occupied by a soft prolapsed mass. Houston's valves were believed to have played an important part in the case. In the empty state of the bowel these valves, three or four in number, overlap each other, as Mr. Houston remarks, so effectually as to require considerable manœuvering to conduct a bougie or the finger along the canal of the intestine.

The conditions present were as follows: The child had weak muscles, poor digestion, habitual constipation, and a relaxed condition of the mucous membrane above Houston's valves. To these predisposing causes of prolapse of the mucous membrane were added the active ones of proctitis with swelling, inflammation, and infiltration of mucous membrane and tenesmus. The prolapsed mucous membrane entirely occluded the lumen of the bowel at the position of Houston's valves as far as the passage of fœcal matter was concerned, but allowed the passage of gas.

The main facts leading to the non-diagnosis of intussusception in the present case were as follows: Absence of abdominal tumor, of distension of the abdomen, and of severe recurring paroxysmal pain; passage of gas from the bowel; and lack of evidence of marked prostration. The soft, prolapsed, non-inflamed mucous membrane could still be easily felt on November 2. The child

at this date was well advanced towards cure and was having normal formed movements.

#### DISCUSSION.

DR. H. A. HARE.—This case seems to me of very unusual interest. In the first place I think it shows how medical treatment will sometimes result in the recovery of a case which the surgeon would have us believe could recover only under the knife and I confess that if this patient had been my own I would have called in a surgeon to operate upon it without attempting medical treatment of any considerable length. Some years ago when Dr. Edward Martin and I wrote the Fiske Essay on Intestinal Obstruction, I think we completed that essay with the idea that surgical interference in case of intestinal intussusception did not always have to be carried out promptly and I think our views upon that occasion were based on a theoretical consideration of the literature of the subject rather than on practical experience. As my examination of the literature has been dwarfed by retrospection and increasing personal experience, I am inclined to believe that any other interference with cases of intussusception than operation is depriving a patient in the majority of instances of a chance for recovery which he might have. I do not understand how Dr. Graham made the diagnosis between the case being prolapsus and intussusception of the mucous membrane of the rectum and I understood him to emphasize the fact that in a number of occasions fæcal matter was passed. I suppose that was emphasized by Dr. Graham because in established obstruction no fæcal matter could come down through the bowel. On the other hand, the child had a large number of movements day after day and it is not possible that the lower bowel could have contained so large a quantity. If I saw a case tonight of prolapsed rectal mucous membrane I am not sure that I could differentiate it from intussusception.

We learn more and more clearly the fact that purgative treatment is of no advantage where we find the bowel is blocked. I do not think I have ever seen a fatal case of volvulus without necessity for regret that the attending physician had been so free with his purgatives. We should guard against delay in resorting to operative procedures and, second, the free administration of

violent cathartics, and I am sure from a somewhat limited but still increasing experience that operative interference if resorted to early cannot do any harm and may do an immense amount of good, so that I am inclined to look upon surgical treatment with greater favor than medical interference. I had a case about three years ago in private practice in which intestinal obstruction, due to inflammatory adhesion, was present, in which Dr. Kelly operated and in which Dr. Martin and myself used high colonic irrigations in Dr. Kelly's presence. No good results were produced and when a second operation was done to liberate the gut it was found that nothing of the character of irrigation could have availed. I am inclined to think that in a volvulus or intussusception only in a very small proportion of cases is irrigation of much value. I think, too, the method recommended by Mr. Jonathan Hutchinson, published 10 or 12 years ago in the "Archives of Surgery," in which he instituted what is known as the "Shakewell" treatment, in which the bowel was filled with water, the patient inverted and held upside down by two policemen and well shaken, had absolutely nothing to commend it except Mr. Jonathan Hutchinson's great reputation. Within the last 24 hours I have read a paper by a very eminent surgeon in which this so-called "Shakewell" treatment is condemned in the strongest terms. These facts are perhaps not germane to Dr. Graham's paper, but I hardly feel inclined to let this opportunity pass without saying that I would have called in a surgeon without such delay as Dr. Graham permitted. The mere fact that the child got well without surgical interference is of course the most convincing answer to this view. Out of 100 cases it seems to me we should have a comparatively small percentage in which the results would be so good.

DR. E. E. GRAHAM.—I agree very largely with what Dr. Hare says in regard to giving purgatives and I gave my first purgative before I was convinced there was any actual obstruction of the bowel. In regard to the diagnosis in my paper I say the facts leading to the non-diagnosis of intussusception are: Absence of abdominal distension, absence of severe paroxysmal pains, absence of symptoms of collapse, passing of gas by rectum, presence of prolapsed mucous membrane after appearance of formed stools. I have seen a number of cases of intussusception in the past few years and am firm in my belief in the correctness of the

diagnosis in the present case. In regard to obstruction of the bowels I have looked the matter up very closely so far as the standard articles on the subject are concerned and I cannot find any case corresponding to the one here reported. The ordinary causes of obstruction are always enumerated and the word enteritis is used, and in an article written by Dr. Keen, who narrates a case very similar to that related by Dr. Hare, in which through inflammation the mucous membrane of the bowel had become more or less adherent. The fact that prolapsed mucous membrane could be distinctly felt, makes the diagnosis clear to my mind, as I cannot possibly conceive how formed stools would pass through an intussusception unless the intussusceptum had left the intussusciptions.

In regard to the question of tumor, I cannot agree with Dr. Griffith. I have seen a careful surgeon pass two fingers into the abdominal cavity and fail to find an intussusception. The majority of cases of intussusception have after the first two or three days an enormously distended abdomen. In the case I speak of it was not an easy matter for the surgeon to find the intussusception, in fact the incision had to be enlarged and the bowel drawn out before the intussusception, which was enteric and three inches in length, could be discovered.

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DR. FREDERICK A. PACKARD reported a case of INTUSSUSCEPTION in a child aged 9 months. (See page 316.)

#### DISCUSSION.

DR. HARE.—I would speak of an interesting attachment that could be made to the apparatus which Dr. Packard advocates. It is a simple U-shape tube filled with mercury. We use a Y-shaped tube, running from the glass ends into the rectum. The Y-shaped tube receives fluid and the U-shaped tube registers pressure, and if at any time the pressure exercised by that bowel is more than the hydrostatic pressure it will also register its pressure upon the mercury in the U-shaped tube. I believe in introducing the liquid gently so that the hydrostatic force will overcome the mechanical obstruction by a gradual relaxation of muscle fibres, rather than by suddenly exercised force. As soon as resistance takes place the flow may be stopped instantly, and as the spasm ceases the clip can be loosened and the flow gently renewed and

if this is done I know that a larger quantity of fluid can be gotten into the bowel and retained than if it is not done. I know in experiments in the lower animals that we attempted during cholera epidemic showed, that it was possible to flush the entire alimentary canal, but unless we used a manometer of this kind the spasm of colon became so great that it was practically impossible to use enough fluid. If we used this manometer, simply allowed the fluid to flow in when the abdominal walls were not resisting the flow, after a time there would be a gurgling sensation and a very few minutes later fluid would gush out of the mouth, proving that by gradual pressure we could overcome resistance. I was glad to hear Dr. Packard say that hydrostatic pressure should be only 2 feet above the patient's buttocks. There has been much discussion as to the height to which the reservoir may be elevated above the patient. In a recent book on Practice we were instructed to hold the syringe from 20 to 30 feet above the head of the patient; evidently this was a typographical error in the first edition, which is perpetuated in the second. The 20 or 30 feet would have given such a pressure that it would have ripped things up from one end to the other. Dr. Senn, in a published paper, claimed that a pressure of more than 5 feet would produce rupture of the peritoneal coat of the gut, if it did not cause rupture of the other coats. In the experiments by Dr. Martin we found we were unable to produce rupture of the gut in lower animals with such pressure.

DR. HAMMOND.—I should like to ask Dr. Packard if the intussusception was low down. I believe when the intussusceptum is in the lower flexure it really is a medical case, for the first 48 hours at least. In cases in which the intussusception is higher, the cases are obviously much earlier become surgical cases and the matter of early differentiating the location will save much time and probably life, giving opportunity to call the surgeon early when the intussusception is high up; while when lower the case may be trusted to medical efforts longer.

DR. F. A. PACKARD.—In regard to this question of injections I spoke last year, in a paper read before this society, and have nothing to add, but wish to repeat that it seems to me to be the greatest folly to state that you may raise the reservoir 3 feet on the first day but that, if your case is of five or six days standing, you may travel up stairs with the reservoir until you get to the



top of the house. The child's bowel is presumably in better shape to stand pressure without ripping in the first few days than on the fifth or sixth day. While I do not believe it is justifiable to use high pressure at any time, it is more dangerous after five or six days than at first, as at the former time pathological changes have certainly occurred that lessen the resisting power of the bowel wall which even when healthy can be readily ruptured by too great a pressure.

DR. H. A. HARE demonstrated on the blackboard the use of the U-shaped tube.

D. L. EDSALL, M.D., Recorder,  
330 South Sixteenth Street,  
Philadelphia, Pa.

## EXTRACTS FROM BOOKS

WHICH HAVE RECENTLY COME TO THE EDITOR'S TABLE.

### INFLUENZA.

"Influenza affects children in many epidemics in about the same proportion as adults. Infants at the breast enjoy a certain immunity, but it is far less marked than in many other diseases of this class.

A large proportion of all cases in most epidemics are of the simple *febrile type*; that is to say, pyrexia without any definite signs or symptoms referable to any one organ or system. The onset of the fever is usually very sudden, and the thermometer often attains 105° or 106° F. in a few hours; the skin is flushed and moist, and the child is usually drowsy.

Occasionally somnolence is very marked, so that the child cannot be aroused. In those cases in which the temperature rises to the height mentioned defervescence occurs usually in about twenty-four hours or even less, and after a few days of languor the health is completely restored.

In other cases, especially those in which the onset is less sudden and the initial rise of temperature less high, the pyrexia continues two, three or even four days, and convalescence is more prolonged. Allied to this type are those cases in which *nervous* symptoms are marked. . . . The *catarrhal* type is also observed with great frequency. The catarrh affects all the respiratory passages and the conjunctivæ, so that the aspect of the patient recalls the onset of measles. In other cases the buccal mu-

cous membrane is that most severely affected, and small circular ulcerations are often observed. In other cases, again, the general symptoms—flushed face, moving alæ nasi, and rapid breathing—suggest pneumonia, but the physical signs are all those of slight bronchitis only, and the dyspnœa is probably due, in the main, to toxæmia. Occasionally the signs of laryngitis are marked, the voice is hoarse, and attacks of stridulous breathing occur, during which there is marked recession of the bases of the chest. . . .

The *gastro-intestinal* type is perhaps less common in infancy and childhood than might have been expected, judging from the liability of children to such affections. . . .

The most common and serious *complication* is broncho-pneumonia.

It occurs most often in cases of the catarrhal type but may complicate any form. . . .

The *diagnosis* of influenza, unless an epidemic is known to exist, is often very difficult. . . .

The *prognosis* in children . . . is very good. . . . In infants who are, comparatively, seldom affected, influenza is often severe, the nervous depression being very marked and the mortality higher than at other ages of childhood. . . .

*Prophylaxis* is not easy. . . . Children residing in the country and much out of doors are more likely to escape. . . . When a child has been attacked, attention to the cleanliness of the mouth and pharynx, and to the ventilation of the room in which it is nursed, will diminish the risk of pulmonary complications.

The *treatment* of influenza should be as simple as possible. . . . Depressing antipyretic drugs should be avoided. . . . Quinine . . . especially in the form of the ammoniated tincture, is at last harmless and sodium salicylate is of some value. . . . Restlessness and excitement may be treated by phenacetine, of which as much as gr. i may be given every four hours at one year of age. . . .

The most important part of treatment in the great majority of cases is the management of convalescence. The patient should be kept in bed at least three days, and should not be allowed out, if the weather be cold or damp, for another week. . . .

In school children, especially those of a neurotic type, a rest of several weeks should be advised. . . . In cases in which there has been protracted broncho-pneumonia, much care should be exercised for months.”—By Dawson Williams, M.D., in *Medical Diseases of Infancy and Childhood*, pps. 105-110.

## GIRLS AT PUBERTY.

"GIRLS who become pallid and feeble about the time of puberty constitute a more or less constantly recurring group of cases, and present themselves with a series of symptoms indicating symmetric enfeeblement of mind and body, becoming lack-luster, losing interest in life, and are a source of considerable anxiety to their parents.

"Too often this group of symptoms escapes the attention it deserves; a medical adviser trying, perhaps, several methods to relieve and, failing, gives the time-saving advice to allow the child to outgrow the difficulty. . . . So long as girls are in the vegetative stage with undeveloped sexual tendencies, while they romp and play as boys and girls should do, all goes well. . . . Often very early the human female begins to suffer from slowly acting bowels; not only so, but unless the opportunity for evacuating these is hedged about with all kinds of artificial safeguards, any discouragement will result in neglect. Teachers in schools admit this, when differences between boys and girls in this particular are pointed out.

"An examination of the girl who seems to have lost her interest in life will usually reveal loss of appetite or overparticularity in choosing of foods, often some vitiation of tastes, lack of muscular capacity, perhaps some evidence of dyspnoea on exertion, irregular or slow-acting bowels, or recognizable failure in circulatory activities, especially clammy hands and feet, heaviness of breath, and if the lungs be examined the apices are seen to be insufficiently expanded. The heart exhibits evidence of dilatation, or, at any rate, there is a flabbiness about it and a distance to its sounds, a heaving impulse, and the pulse becomes over-readily disturbed in rhythm upon motion or excitement.

"The girl will be more inclined to read and employ herself in sedentary fashion, and will lack spontaneous activity and alertness. The blood, if examined, will be found defective in hemoglobin; the urine, perhaps, of the highest specific gravity, probably alkaline, or it may be considerably increased in amount, or these conditions may alternate. The symptoms are vague enough to escape attention ordinarily, but prompt and persistent remedies are here of almost as much importance as in more seriously disturbed states. If all this be neglected the girl's character may sometimes be grievously altered and her future changed. Remedial measures . . . should be persistently employed for months rather than weeks, continued, it may be, for years. Nothing is of more importance than that the physician shall gain the confidence of his patient and secure her coöperation. . . . The chief difficulties and needs have to do with the question of supplying incentive. . . . It is a good plan to strive

earnestly to impress, not only the necessity of doing as we direct, but to urge this with such subtlety and tact and withal extreme persistence and variety in our methods, that the result may be surely obtained soon or late. . . .

"The first organ to be looked to is the heart, not neglecting, of course, the digestive conditions. A powerful heart tonic used for a few days or weeks will help more than any other one medicine, and it is our custom to add to any tonic used, digitalis, or strophanthus or nux vomica in full doses. . . .

"The digestion requires assistance, and the predigesting agents, such as pepsin or pancreatin in elixir, are not only of value, but good menstrua for other drugs. The bowels must be kept sufficiently active. . . . Regulated amounts of broiled or scraped beef or mutton along with predigested milk or Koumiss, will soon show results. Along with digestive tonic it is well to use mineral acids, muriatic, or preferably, nitro-muriatic, especially where the urine is found to be alkaline—a very common cause of mental depression. Most cases of anæmias in this class, as well as in younger children, are due to faults in the intestinal digestion, and important medicines, aside from those alluded to, forms of myrrh, such as aloes and myrrh, and the intestinal antiseptics, salol, beta-naphthol and bismuth; and the use sometimes of castor oil, either once or twice a week at first to secure a thorough evacuation, or in smaller amounts in capsule three times a day, immediately before meals in ten to twenty minim doses, is very helpful in catarrhal states. . . .

"The use of cold water sponging or bathing should be learned and practiced. . . . This bath, moreover, is better given after a partial breakfast, such as a cup of cocoa, followed by a rest in bed for half an hour, then the bath given by the maid, a rough rub-down, and finally breakfast. . . .

"A slowly and carefully increased exercise, not too monotonous, along with vigorous tonic medication, will repair the fountain of motor force. . . . Only that exercise is best which involves some pleased acquiescence in the performer or some interest in the doing. . . . Golf is one of the best possible exercises and is to be highly and persistently recommended. . . . It is, indeed, one of the most difficult problems to first select and then to carry out the proper means of developing the bodies of our growing girls."—Taylor and Wells, in *Manual of the Diseases of Children*, pp. 707-713.

## BOOK REVIEWS.

*Traité de Medecine.* Edited by PROFESSORS BRONARDEL and GILBERT. Vol. V. Paris, 1898. J. B. Baillière et Fils, Publishers.

The fifth volume of this complete French system of medicine which is now before us was published early in the summer, and is in every way quite equal to the preceding volumes. It contains the following subjects: diseases of the salivary glands, of the pancreas, of the liver, spleen, kidneys, and the bladder and genital organs of the male and female.

The contributors are: Drs. Dupré, Richardiére, Gilbert, Fournier, Garnier, Surmont, Lannois, Jeanselme, Chauffard, Guinon, and Siredey. It is hardly necessary to add that, coming from such well known authorities, the articles are well done in every respect. There are 992 closely printed pages and an index.

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*Traité d'Accouchements.* By PROFESSORS TARNIER and BUDIN. Vol. III. Paris, 1898. G. Steinheil, Publisher.

This is the third and last volume of the work on the theory and practice of obstetrics by the great French obstetrician and his former pupil, Budin, who has succeeded the much regretted and lovable Tarnier to the chair in the Faculty of Paris.

The present volume is devoted to the vast subject of maternal dystocia, and in its 771 pages the following subjects are treated: pelvic deformities, dystocia due to external genitals and perineum, the cervix and corpus uteri; dystocia produced by pelvic and abdominal tumors; rupture of the uterus and vagina; hemorrhage; thrombus of the vulva and vagina, eclampsia and complications during labor.

There are a number of illustrations and a good index at the end.

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TEXT-BOOK OF OBSTETRICS. By BARTON COOKE HIRST, M.D. Philadelphia, 1898. W. B. Saunders, Publisher. Price. \$5 net.

This is a good book by a well known authority, and needs little criticism. It is an excellent text-book for students, as it is clearly expressed and concise. The illustrations are many and well done.

**A MANUAL OF MODERN SURGERY.** By JOHN CHALMERS DA COSTA, M.D. Second edition. Philadelphia, 1898. W. B. Saunders, Publisher. Price, \$4 net.

The second edition of this manual has been considerably enlarged and practically rewritten. There have been many changes made, among which we may mention additions to the surgery of the liver and gall-bladder, spleen, pancreas, female breast and the use of the Röntgen Rays.

Some of the more recent operations are described, such as Owen's operation for hare-lip, Senn's method of resection of the shoulder joint, etc.

The book is practical and well written, and can be highly recommended as a text-book.

**MANUAL OF PHYSICAL DIAGNOSIS.** For the use of Students and Physicians. By JAMES TYSON, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Physician to the University Hospital; also Physician to the Philadelphia Hospital, etc. Third edition, revised and enlarged. Illustrated. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1898. Price, \$1.25.

Some months ago we had the pleasure of reviewing Tyson's "Practice of Medicine," and we would give the same words of commendation to this excellent little manual. The fact that this is a third edition, does not signify that the methods of diagnosis have changed, so much as it shows the great demand for the book.

The sections on examination of the blood and chemical analysis of the gastric contents have, however, been considerably enlarged and brought up-to-date. Among the illustrations, the two colored plates showing blood staining and the various forms of malarial plasmodia are worthy of note. Though himself a physician of wide practical experience, Dr. Tyson does not hesitate to quote often from the writings of other great diagnosticians.

**MEDICAL DIAGNOSIS.** A manual of clinical methods. By J. J. GRAHAM BROWN, M.D., F.R.C.P.E., F.R.S., Ed. Fourth edition. Revised and enlarged, with 112 illustrations. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1898. Price, \$2.25.

This is a larger book than Tyson's as its price indicates. The whole field of diagnosis is covered, so far as it can be determined, by observation or examination. The fact that the book has been

for some time out of print has led to its being largely rewritten. The book is very complete and eminently practical. American readers will be specially interested in it because it contains so little reference to the way things are done on this side of the water. But examination of the more than 400 pages does not show that they do things so very differently over there. They do use the straight wooden stethoscope—a curiosity here. The illustrations are excellent, especially those which show the proper methods of examining the nose, throat and eye, and those which indicate the motor areas of the muscles of the limbs.

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THE ADVENTURES OF FRANCOIS, Foundling, Thief, Juggler and Fencing Master during the French Revolution. By S. WEIR MITCHELL, M.D., LL.D. Published by The Century Co. New York City, 1898.

It is scarcely a year since we had the pleasure of commending to our readers, "Hugh Wynne," the first great novel of our fellow-practitioner of medicine. Now comes this other, which has met with no less approval by the public. The title indicates the plan of the book, which gives us such a vivid picture of those troublous times in that much disturbed country. As a literary work we do not attempt any criticism. Others far more capable have pronounced it excellent. We do know, however, that it is an intensely interesting story, and we do feel proud that the author writes an M.D. after his name before his LL.D., even though the latter is bestowed by Harvard and by Edinburgh. The publishers have spared no expense or care to give to the book a form and illustrations, attractive, clear and suggestive.

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DIPHTHERIE UND DIPHTHERITISCHER CROUP. By DR. ADOLF BAGINSKY, Professor of Children's Diseases at the University of Berlin. With 68 illustrations, of which 19 are in colors. Published by Alfred Hölder, I. Rothenurmstrasse 15, Vienna. 1898. Price, \$2.75.

This is one of the volumes of "special pathology and medicine," which is being put forth by this energetic publisher under the editorship of Professor Hermann Nothnagel. Care in preparation and scientific accuracy are everywhere apparent. Thus after the history of the disease there comes page after page of discussion, with numerous tabular views, of such topics as geographical distribution, climate, seasons, filth, poverty, home, sewer gas, age, sex, constitution, nationality, race and spread of the disease. Klebs-Löffler Bacillus is honored by several beautiful colored plates. The same is true of the pathological lesions of mem-

branes and organs. Rarely have we ever seen the equals of these illustrations. The symptomatology, diagnosis, prognosis and treatment are exhaustive and of course up-to-date. The illustrations, vertical median cross sections of the head and neck, of the operation of intubation, are far superior to anything we have seen before. We hope to be able to reproduce them for our readers ere long. We believe that Americans know how to treat and cure diphtheria, but we welcome all such scientific contributions as this and commend it, too, for its practical value.

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**RHEUMATOID ARTHRITIS: Its Pathology, Morbid Anatomy and Treatment.** By GILBERT A. BANNATYNE, M.D. Second edition. Illustrated. Published by John Wright & Co., Bristol, England. 1898.

The author strongly believes in the bacterial origin of this disease, which we know more often as "Arthritis Deformans," though he acknowledges that there is a form, which he styles "chronic," which is degenerative in character. He presents pathological and bacteriological proof of his position in a very scientific way. His plan of treatment which is the thing which most interests our pockets if not our intellects, consists in a generous diet extending even to forced feeding of seven meals a day, the administration of creosotes, naphthols, external applications of guaiacol, methyl salicylate or carbolic acid, and the use of heat, electricity, massage and baths.

It is a very complete monograph on a common disease.

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**SYPHILIS AND THE VENEREAL DISORDERS.** By PROFESSOR FRANZ MRACEK. Philadelphia, 1898. W. B. Saunders, Publisher. Price, \$3.50 net.

This atlas contains 71 colored plates portraying the various skin and other lesions of syphilis and non-specific disorders. The book concludes with about one hundred pages of reading matter on syphilis, gonorrhoea and ulcer molle and their treatment.

The translation from the pen of Dr. L. Bolton Bangs is good, and we can recommend this very excellent little atlas, whose modest price makes it available to all.

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**DOCTOR AND PATIENT: Hints to both.** By DR. ROBERT GERSONY of Vienna. Translated with the permission of the author, by A. S. Levetus, with a preface by D. J. Leach, M.D. Published by John Wright & Co., Bristol, England. 1898.

We wish this little book could be in the hands of every young practitioner. For fifteen years the German students have had



the benefit of its practical wisdom, and even now unless some American publisher brings it out, we fear it will reach few on this side of the water. There are chapters on such subjects as "The First Visit," "Cheerfulness," "Frequency and Length of the Doctor's Visits," "Gossip," "Consultations," "Fees," etc. It seems to us a remarkable thing that German people are evidently so much like us in their contact with physicians. Truly, "all the world's akin."

**OPERATIVE SURGERY.** By OTTO ZUCKERHANDL, M.D. Philadelphia, 1898. W. B. Saunders, Publisher. Price, \$3.00 net.

This manual is by all odds the best on operative surgery that has been offered in the English language. It is in every way just the book that the practical surgeon needs for ready reference, and is eminently useful in this respect.

The translation, which is by John C. Da Costa, M.D., is good and not too strained, and the colored plates and figures are well chosen and well depict the various operations.

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**DISEASES OF WOMEN.** By E. C. DUDLEY, M.D. Philadelphia, 1898. Lea Brothers & Co., Publishers.

A well written and concise book on the principles and practice of gynecology, which in no way differs from the already too numerous manuals on the subject.

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**THE ELEMENTS OF PHYSICAL EDUCATION.** A Teachers' Manual. By DAVID LENNOX, M.D., and ALEXANDER STURROCK. Published by William Blackwood and Sons, Edinburgh and London. 1898.

This little volume of 240 pages will surely be of value to all who take an intelligent interest in physical training. The first part is a compilation of the essentials relating to the physiology and psychology of muscular exercise. For the authors believe that mere muscular development is not the only aim of exercise. Part Two shows an abundance of exercises, suitably arranged for the progress of the individual or class and clearly described and illustrated by 147 photographs. Part Three contains musical accompaniments by Harry Everitt Loseby.

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**THE SEXUAL INSTINCT,** its Use and Dangers as Affecting Heredity and Morals. By JAMES FOSTER SCOTT, M.D. Published by E. B. Treat & Co., 241 West 23d street, New York City. 1899. Price, \$2.00.

This is one of this publisher's excellent medical classics, so well and favorably known. It is a simple and manly discussion of a

subject far too rarely treated with intelligence and common sense. Our experience may not in all respects coincide with that of the author. Yet one cannot fail to receive help, medically and morally, from a careful perusal of his views. He believes in stern repression rather than license of prostitution, and presents his arguments thereto with much force and persuasiveness. There are also well written chapters on criminal abortion, gonorrhœa and syphilis. The book is intended for laymen and may well be recommended to them by the medical profession.

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**THE NATURAL HISTORY OF DIGESTION.** By A. LOCKHART GILLESPIE, M.D. Illustrated. Imported by Charles Scribner's Sons, 153 Fifth avenue, New York City. 1898. Price, \$1.50.

This is a very excellent volume of Scribner's Contemporary Science Series. Tables, diagrams and pictures serve a very useful purpose. The digestion of plants and animals is presented as a basis. The various forms of food are taken under consideration and their digestion and absorption carefully traced. A discussion of the modes of digestion of various forms of animal life is most interesting. Metabolism, diatetics, animal heat, stimulants and the best form of foods are other useful subjects treated. We have been very much pleased with the work and believe it deserves a place on every physician's table. Careful reading of it will help greatly in a common-sense treatment of the cases of dyspepsia constantly coming to us, as well as in the diet which we prescribe in cases of disease.

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**TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK** for the year 1898. Edited by F. C. CURTIS, M.D. Published by the society.

This volume contains forty-four papers with their discussions, which are, as usual, of great value and interest. Of particular interest are the papers and discussions on hypertrophy of the prostate gland and its treatment, by Dr. L. Bolton Bangs, Willy Meyer and Lewis S. Pilcher.

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**TRANSACTIONS OF THE NEW YORK STATE MEDICAL ASSOCIATION** for the year 1897. Edited by E. D. FERGUSON, M.D.

The transactions contain thirty-two excellent papers on most varied subjects, the list of which would be too long to give here. Dr. E. H. Squibb's "Brief Comments on the Materia Medica, Pharmacy and Therapeutics of the Year," are as usual to the point and give the reader an excellent résumé of the many new remedies which are constantly being thrust upon the profession.

Jewett's "Practice of Obstetrics, by American Authors," is forthcoming at an opportune time. Its subject progresses so rapidly, particularly in this country, that a completely new work by acknowledged masters of all the subjects it comprises will be welcomed. It will be a practical book as its title indicates. Yet its suitability for the obstetrician will not lessen its value as a text-book. Indeed, it numbers among its contributors the professors in many of the leading medical colleges, so that it will doubtless have widespread success in the student world. The publishers have spared nothing in typography and illustration compatible with issuing the volume at a price within the reach of all.

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Messrs. Lea Brothers & Co. announce for publication in March, 1899, the first volume of "Progressive Medicine," a new annual which will be issued in four handsome octavo, cloth bound and richly illustrated volumes of about 400 pages each. The several volumes will appear at intervals of three months. In this age of unusual progress, so rapid is the advance in all departments of medical and surgical science that the need for condensed summaries which shall keep the practitioner up to date at the least possible expenditure of valuable time has become imperative..

What the busy physician needs today is a well-told tale of medical progress in all its lines of thought, told in each line by one well qualified to cull only that matter worthy of his attention and necessary to his success. He needs material which shall teach him all that the master of his specialty knows of the year's work.

It is with the object of presenting only such readable and useful material that these volumes are published, and every contributor to the pages of "Progressive Medicine" will say what he has to say in an original narrative form, so that every statement will bear a personal imprint expressing not only the views of the author cited, but the opinion of the contributor as well.

To insure completeness of material and harmony of statement, each narrative will receive the careful supervision of the general editor, Dr. Hobart Armory Hare, whose reputation will everywhere be acknowledged as ensuring practical utility in a high degree. Those associated with Dr. Hare in the production of "Progressive Medicine," include a brilliant gathering of the younger element of the profession, well representing the class which is so energetically contributing to make modern medical history.

With the appreciation of the self-evident utility of such a work to all practitioners, the publishers are enabled to ask the very moderate subscription price of ten dollars for the four volumes.

# ANNALS OF GYNECOLOGY AND PEDIATRY

VOL. XII.

MARCH, 1899.

No. 6.

## ORIGINAL COMMUNICATIONS

### OVARIAN TUMOR REMOVED DURING THE ACUTE STAGE OF TYPHOID FEVER.

E. W. CUSHING, M.D.

Miss X., aged 11 years, 10 months, had always been a healthy, girl; never menstruated. For the period of one year before the time of operation she had been nauseated nearly every day, mostly at noon; the attacks of nausea not lasting long. For three months previous to operation, had had feelings of weakness and faintness at intervals, such attacks usually coming on in the afternoon.

During six months before operation the mother had noticed enlargement of the abdomen, slight at first, then latterly growing rapidly.

Two weeks before this patient was taken sick, her sister in the same house was seized with severe typhoid fever, with all the well known and pathognomonic symptoms.

Our patient began to droop on Tuesday, April 12, 1893. She did not take to her bed until Friday, when she became violently ill, with temperature running to over 105° F. in the evening. Dr. Austin, the family physician, called Dr. Fitz in consultation on Sunday, but no diagnosis was made, it appearing probable to Dr. Fitz that the case was one of tubercular peritonitis.

As the abdominal swelling was great and the respiration was very much impeded by it, I was sent for on the same day with the

hope that surgical measures would afford some relief, perhaps by tapping.

On examining the patient, it seemed to me that she had an ovarian tumor, round, smooth, movable, fluctuating. I therefore attributed the high temperature to typhoid fever, inasmuch as her sister was already infected with that disease. At any rate I preferred to open the abdomen to puncturing, without knowing what I had to deal with.

Operation on Monday, the seventh day since the first signs of indisposition, and the third since she had been in bed. Rose spots could be detected pretty clearly. The whole abdomen was filled with a fluctuating mass. Temperature 104° F. Breathing very shallow and difficult. Incision revealed a clear, shining cyst wall; this was punctured and the fluid evacuated. There were no adhesions. The other ovary showed signs of cystic degeneration and was removed. Operation particularly easy and correspondingly rapid.

It was a peculiar sensation to put the hand into an abdomen at a temperature over 104°. It felt actually hot. I examined the small intestines carefully to see whether any disease of Peyer's patches could be detected by sight or touch, thinking that the opportunity in the living subject would not often occur. No abnormalities could be found in the intestines.

The patient recovered from the operation nicely, but had a long and hard struggle with the fever. The oppression of breathing was relieved at once. There were thirteen hemorrhages from the intestine, on the Sunday thirteen days after the operation. It seemed as if she would hardly recover, but youth and good care brought her through finally, although she was ill over three months. She lost all her hair, and seemed a perfect wreck.

There was at no time any suppuration of the abdominal wound. The young lady finally made a most perfect convalescence, and has developed into a handsome, active girl, of great physical and mental vigor, now nearly 18 years old.

As it is not often that the ovaries are removed before puberty, it may be interesting to add that in no respect whatever does she seem, or, as far as can be ascertained in such a delicate matter, by her mother, does she feel at all different from girls of her age.

168 Newbury Street, Boston.

## PREMATURE SEPARATION OF THE PLACENTA.

CHARLES GREENE CUMSTON, B.M.S., M.D.

Assistant Professor of Surgical Pathology, Tufts College Medical School.

**CASE I.**—On November 15, 1895, we were called out of town to see Mrs. I. M., a healthy young lady of twenty-seven, who was six months pregnant with her first child, and the following history was obtained. For the past three months at regular intervals of four weeks, a bloody discharge occurred from the vagina, which lasted several days on each occasion, and at the same time a heavy feeling in the lower abdomen was complained of. On the evening previous to our visit, after an afternoon at golf, a slight bloody discharge appeared, which continued throughout the night. There were no labor pains, and the os was not dilated. The pulse was seventy-seven, and the temperature 37° C. Urine normal.

The usual treatment of threatened miscarriage was ordered, namely, absolute rest in bed and tinct. opii in full doses. The bleeding ceased after a few hours and for one week all went well and we were about to allow the patient to sit up when the nurse telephoned that a severe flow of blood had suddenly appeared without any cause. We arrived in about an hour and by palpation the uterus appeared somewhat larger than it should be and the fetal heart sounds were indistinctly heard, although they could be detected. The os was not dilated. The pulse was one hundred and five, regular and quite strong. Temperature normal.

The vagina was tightly packed with subgallate of bismuth gauze and two milligrams of strychnia given subcutaneously. Labor pains soon appeared and within an hour the gauze was removed and the cervix was found to be dilated to the extent of a silver dollar. A soft mass presented. A gush of blood then came from the uterus and a hemorrhage commenced.

The vagina and vulva were rapidly disinfected, the cervix was dilated, and with the hand the placenta, which was completely detached and presenting, was easily delivered, and by pushing the fetus down so that the head plugged the os the bleeding decreased,

and in twenty minutes a well developed male fetus was delivered without further interference. A hot intra-uterine douche and ergotin were given. The patient made an uninterrupted recovery.

Macroscopical and microscopical examination of the placenta did not reveal any pathologic change.

CASE II.—On the morning of January 12, 1898, we were asked to see Mrs. W. H., æt. 32, who had recently moved to Boston. The patient was a medium sized but well built woman. She had been living in New York City where the streets had been in an almost constant state of repair, but no history of malaria could be obtained.

We were informed that a short time before our arrival the patient experienced pain in the abdomen, and thought that some amniotic fluid had been discharged along with a small amount of blood.

The patient stated that her last menstruation occurred on June 3, 1897, and that she expected to be delivered about the first part of February, 1898. Her first pregnancy, four years ago, resulted in a miscarriage during the eleventh week, and twenty-one months ago she was delivered of a seven months' fetus.

Examination showed that the breasts were enlarged, the nipples and areolæ were pigmented, and a few enlarged subcutaneous veins could be seen. The glands were well developed and a thin colostrum could be pressed from the nipples. The linea alba was pigmented. Temperature normal, pulse sixty-eight.

The fundus uteri extended three fingers' breadths above the umbilicus, while the fetal head presented in the pelvis. The back of the child was to the left and the small parts could be palpated on the right side. The heart sounds were good and heard on the left. A diagnosis of left occipital presentation was made.

Per vaginam, the cervix was found directed rather backwards and the external os was sufficiently dilated to allow the index finger to pass, while the head could be felt behind the internal os. There was a bilateral laceration of the cervix which was deeper on the left.

The patient was given a subcutaneous injection of morphine, and absolute quiet in bed was ordered, but during the day amniotic fluid and blood continued to be passed. Analysis of the urine was negative.

The next morning the child was still alive and the heart sounds

were good in spite of a considerable amount of amniotic fluid and blood still escaping. At four in the afternoon a hemorrhage occurred, and upon examination the cervix was found dilated to the extent of a silver dollar. The placenta presented and was found to be almost entirely detached from the uterus. The position of the fetus had not changed.

Ether was given, and after preparation of the vulva by shaving and scrubbing with brush, soap and water, and a vaginal irrigation of a solution of creolin, the cervix was manually dilated. The left hand was then introduced into the uterus and the left foot seized and brought down, after the placenta was pushed aside and a dead fetus being easily delivered in a second breech position.

An intra-uterine creolin irrigation was given, the uterus contracted well and its cavity and vagina were packed with xeroform gauze.

The following morning the temperature was 38.°8 C., but fell to 37.°4 C. in the evening, and in three weeks the patient was allowed to be out of bed.

The placenta was found intact and microscopical examination revealed a marked fatty degeneration of the decidua.

Lesner has said that premature detachment of the placenta is due to the fact that the adhesions binding the organ to the uterus cannot resist the contractions of the uterine muscle during labor. Hegar believes that a fatty degeneration of the decidua is the cause, while Dohrn considers that this complication is produced by the elimination of necrotic tissue from embryonic cell formation, similar to that produced by granulating surfaces.

As the primary causes of premature detachment of the placenta, uterine contractions, or traumatism, must be admitted, which give rise to hemorrhage at the site of the placental attachment to the uterine cavity, thus tearing the placenta away as the hemorrhage overcomes intra-uterine pressure.

We must here take into consideration all those changes which are entirely due to the process of normal pregnancy, and are in no way pathologic in nature; from the beginning they render the uterus more liable to hemorrhage. In the first place the blood of pregnant women undergoes quantitative and qualitative changes, in this sense that the quantity increases, but its tenor in red blood corpuscles relatively decreases. According to some authorities there is a true plethora, while for others there is hydramia. Kiwisch termed this condition serous plethora, while Virchow des-



ignated it as physiological leucocytosis. If a given case presents one or the other condition of the blood, it simply means that the woman was previously healthy to her pregnancy, or was either anemic or chlorotic.

As the left ventricle of the heart is always somewhat hypertrophied from pregnancy the quantitative increase of the blood will naturally cause an increase in the blood pressure. As a consequence of the poorer condition of the blood the vessels are not so well nourished, and for this reason they may rupture with greater ease when submitted to an increased blood pressure.

To this we may add the mechanical action of the pregnant uterus, producing pressure on vena cava inferior, which has as a result an engorgement of the abdominal vessels and a sluggish circulation in the decidua serotina through the large sinuses. We must also remember that towards the end of pregnancy the site of the insertion of the placenta contains only a slight amount of supporting tissue on account of newly formed and increase in size of the blood vessels already existing. It is, therefore, quite probable that only a slight traumatism is sufficient to produce a rupture of the vessels, which will result in a hemorrhage and premature detachment of the placenta.

It is, nevertheless, a fact, that this abnormal occurrence is infrequently met with among the working class who are so subject to traumatism during gestation, and consequently we must admit that in most cases there are several conditions present which are the etiological factors. We may then divide the factors into two classes, viz., the *predisposing* and *direct* causes, but in many instances we are obliged to simply surmise what may possibly be the factors in a given case.

As predisposing causes we have (1) a pathologic condition of the blood and vessels directly due to the process of gestation; (2) nephritis, and more particularly the parenchymatous type. As in other organs of the body, the lesion in the kidneys will produce a high arterial pressure in the uterine vessels due to degenerative changes in their walls, bringing about the so-called pseudo-menstruation, which if moderate, may possibly not interfere with the pregnancy, but if severe, will lead to a premature separation of the placenta. Instances of this kind have been recorded by Goodell, Blot, Löhlein, Cohn, and many others.

Thirdly, we have hyperemia of the uterus, be it due to either arterial hyperemia or venous stasis. The former may be caused

by a preëxisting endometritis, metritis, or an inflammatory process in the adnexa, the use of strong purgatives or drastics, overindulgence in alcoholic drinks, hot baths, etc. Venous stasis is caused by compression of the vena cava inferior from a very large uterus, or from neoplasms in other abdominal viscera, tight lacing, or excessive walking or other exercise. Pathologic changes in the placenta or decidua serotina, as well as displacements of the uterus, are prominent etiological factors in premature separation of the placenta, and diseases of the more distant viscera, such as the liver, heart or lungs must not be forgotten. Instances of this complication have been reported as occurring in morbus Basedowii by Bennike and others. Anemia, chlorosis and hæmophilia, the hemorrhagic diathesis following a severe infectious disease, such as typhoid fever, cholera, icterus gravis, etc., all have their bearing upon premature separation of the placenta. Goodell believed that repeated pregnancy was a predisposing cause, and nervous conditions may also be included in the list.

As direct causes we have traumatism of all kinds; a severe shaking of the body such as results from falling, jumping, riding or driving. In some instances vomiting, coughing or sneezing have been considered as the direct cause. Bodily exertion, as lifting heavy weights, dancing, slipping, etc., have appeared as the only direct factor, and Brunton has collected thirty-two cases from English literature, eleven of which were caused from bodily exertion.

Premature separation of the placenta may also be produced by an hydramnios or an exaggerated development of the uterus, because in the latter instance the placenta does not grow in proportion to the uterus, and in the former case after some of the liquid has been expelled the uterus contracts, and the site of the insertion of the placenta is diminished and the organ becomes detached. During labor the sudden exit of the liquor amnii may have the same effect. Scanzoni considered tetanus uteri as an important cause, and Schröder has pointed out that a short umbilical cord will also produce premature separation of the placenta. Runge says that a part of the placenta may become detached when the ovum ruptures, if the membranes keep the os uteri fully dilated so that it finally appears at the vulva.

Considering now the symptomatology of premature separation of the placenta it may be said that hemorrhage, especially when accompanied by some lesion of the circulatory system, is most al-

ways preceded by a general malaise, dizziness, vague pains in the abdomen, diarrhoea, etc., and usually the blood appears suddenly. The symptoms of internal and external hemorrhage are naturally quite different and must be considered separately.

Internal hemorrhage occurs if only the central part of the placenta is separated from the uterine wall, or when the ovum tightly hugs the lower segment of the uterus preventing the blood from making its exit. In some few cases the blood has forced its way directly through the placenta into the cavity of the ovum and then made its exit mixed with amniotic fluid.

The patient suddenly complains of a bearing down sensation and severe abdominal pains which may extend to the back and iliac fossæ. Severe vomiting may also occur. All the symptoms of marked anemia appear rapidly such as ringing in the ears, dizziness ending in syncope, etc. The skin becomes cold and pale, the vision is dim, and the pulse small and thready.

Death will rapidly take place if the bleeding cannot be arrested, and is sometimes preceded by convulsions.

Another important symptom is an increase in the size of the uterus due to the issue of blood into its cavity, but Hennig has pointed out that the uterine muscle may become relaxed just before death. The distended uterus may produce a mechanical dyspnoea.

The membranes of the ovum are distended to their fullest extent and can be felt, according to Winter, projecting into the cervical canal. Spiegelberg, Herman and others believe that the collapsus is not so much due to an anemia as to shock produced by the sudden and excessive distension of the uterus.

The shape of the uterus becomes changed from the accumulation of blood within it. Habit says that it becomes globular, Hennig upholds that it presents two projections divided by a sulcus, while Scanzoni declared that the anterior wall of the organ was more particularly distended. A number of accoucheurs believe that the site of the hemorrhage may be made out by deep abdominal palpation, and Leroux claims that a distinct fluctuation can be made out. The fetal parts cannot usually be felt where the blood has collected, or only so with difficulty.

External hemorrhage is quickly detected, the discharge of blood from the vagina being continuous or interrupted, but in the latter case, although it may stop for some little time, it will sooner or later again start up.

If the hemorrhage be slight, the blood will coagulate in the vagina, in which case clots only will be expelled, but occasionally a large amount may collect in the vagina to such a degree that all trace of hemorrhage may be absent. When such is the case, the patient will suddenly complain of pain in the abdomen which is accompanied by the feeling as if something had given way. Then the same symptoms as those met with in internal hemorrhage follow, viz., anemia, syncope and death.

Complete external hemorrhage is, however, infrequent, and usually internal and external hemorrhage occur simultaneously or follow each other, so that it is quite natural that the symptoms are greatly changed and are not at all characteristic. If the hemorrhage only takes place gradually, the subjective symptoms, and especially severe pain, are not so severe, and the general condition of the patient will also influence the conditions present.

Although the diagnosis is very easy in some cases it may be of great difficulty in others, the external hemorrhage being always quickly recognized. Hemorrhage from a lacerated cervix or vagina can be easily eliminated, but a placenta previa, which is the most frequent cause of uterine hemorrhage, must be excluded.

Important data will be gained in carefully going over the anamnesis of the case. Premature separation of the placenta is usually preceded by traumatism, while hemorrhage from a placenta previa is sudden and unexpected, and no cause can be attributed for its occurrence. It is also unattended by abdominal pains. In the one there is hemorrhage from a contracting uterus, while in the other contractions are absent. A diagnosis of placenta previa is more certain when the os uteri is dilated sufficiently to admit a finger or two as the protruding portion of the placenta can be felt and recognized.

A diagnosis of concealed hemorrhage can only be made by getting an exact anamnesis, making a thorough examination and careful observation of the patient. The etiological data of possible value are sudden abdominal pain, symptoms of acute anemia and collapsus, and make the diagnosis of concealed hemorrhage probable, but it will only be certain when every other lesion can be eliminated by exclusion, including rupture of the uterus. In the latter condition we may have similar sudden symptoms and even syncope, but by abdominal palpation a ruptured uterus will be found decreased in size, the protruding parts of the child retract and can be felt quite distinctly under the abdominal walls.

When there is a concealed hemorrhage going on the uterus increases in volume. Finally a diagnosis of rupture of the uterus will not be made if there are no conditions present which could produce this accident.

In hydramnios we have a gradual but abnormal distension of the uterus unattended by pain in most cases, but we may meet with instances in which there is a sudden increase in size, accompanied by severe pain. The pulse is full and hard, while in concealed hemorrhage we would find it rapid and thready.

In twin pregnancy the uterus, although it may be larger than usual, will develop gradually in size, two fetal heart sounds can be heard on auscultation, and two heads can be found by palpation.

An anamnesis badly taken may lead to the erroneous diagnosis of apoplexy or paralysis of the heart, when in reality a concealed hemorrhage is taking place, and Brunton has shown that the membranes of the ovum will be distended when internal hemorrhage is going on so that a careful digital examination through the internal os, when dilatation is sufficient, will reveal the true state of affairs.

All obstetricians are of the opinion that a rapid delivery is the most important therapeutic measure by means of powerful uterine contractions, and for this purpose we can strongly recommend the subcutaneous use of strychnia at the dose of two or even three milligrams.

The weakened condition of the patient should be attended to by treating the anemia by artificial serum injections, the following formula having been found most useful by the writer:

R. Natrii chlorid.,	1.0
Natrii glycer. phosphat.	
Natrii sulphat.,	aa 2.0
Aq. dest.,	300 c.c.

An injection of 300 c.c. may be repeated several times if necessary, but in our experience not more than two will be needed unless the collapse is extreme.

The general condition of the patient, the amount and severity of the hemorrhage, and the stage of labor must be all taken into consideration, and each individual case must be treated according to its requirements. The most important consideration is whether the hemorrhage is external or internal.

An attempt to control an external hemorrhage, when the loss of blood is moderate and the os only slightly dilated, may be made by hot or cold irrigations, but a thorough gauze packing of the os and vagina is by far the most prompt in action and at the same time will stimulate uterine contraction. We also think that a tightly applied abdominal binder aids the vaginal tamponade, and if necessary an ice bag may be placed over the uterus. The exhibition of ergot in any form should, in our opinion, be condemned as long as there is anything in the uterine cavity.

If bleeding continues or is severe, no time should be lost. The os should be dilated manually and the membranes ruptured. The uterus will then contract well, and from this fact the hemorrhage is controlled. Care should be taken to only puncture the membranes with a very fine instrument so that the amniotic fluid will drain away slowly, and if the uterine contractions do not appear, strychnia should be given.

If dilatation is complete, the forceps may be applied or version may be resorted to. We believe, however, that "accouchement forcé" as recommended by Mangiagalli, Winter, and others, is a dangerous method, and the same may be said of instrumental dilatation as taught by Schröder.

When concealed hemorrhage is going on, an early rupture of the membranes is liable to occur from over distension, and if this should take place the intra-uterine pressure is lost on account of the escape of the liquor amnii. If the indications for emptying the uterus of its contents are not too pressing it is better not to rupture the membranes when the dilatation is not complete, otherwise the hemorrhage may become severe, and the case will end fatally.

The delivery of the placenta must be done with care, and as post partum hemorrhage is very prone to arise in these cases, the patient must be closely watched during the first few days following delivery. She should be kept quietly in the horizontal position, and the bladder and rectum must be kept empty by the nurse.

We believe that it is good practice to pack the uterine cavity and vagina with gauze for the first forty-eight hours following delivery in these cases as it is the best uterine stimulant that we possess. After the packing is removed a pill of ergotin and hydrastin given two or three times daily, according to the therapeutic effect produced, for one week will be found of service.

If, however, post partum hemorrhage should take place, compression of the abdominal aorta or bimanual compression of the uterus, as recommended by Fassbender, should be resorted to. We believe that the old method of intra-uterine irrigations with a solution of the sesquichloride of iron, long ago recommended by Barnes and Braxton Hicks, is of much value, or vinegar, alum or tannin may be used if the iron salt is not at hand.

For stimulating the heart, subcutaneous injections of ether, camphor, caffen or musk, are of value, the following formulæ being of value:

R. Camphor, trit.,	2.0
Ol. olivar.,	10.0

M. D. S. For hypodermic use. Each c.c. contains 20 centigrams of camphor.

R. Camphor, trit.,	0.50
Tinct. digitalis,	gtts. xx.
Ext. opii,	0.05
Vitel ovi,	no. 1
Aq. dest.,	200.0

M. D. S. For an enema.

R. Caffen,	2.50
Natrii benzoat.,	3.0
Aq. dest.,	q.s. ad 10 c.c.

M. D. S. For hypodermic use. Each c.c. contains 25 centigrams of caffen.

Enema containing cognac in considerable amount have often a surprisingly rapid effect, and should not be neglected.

The food must be plentiful but liquids only should be given in small quantities and often.

The mortality in premature separation of the placenta has been high both for mother and child, over 50 per cent for the former and 95 per cent for the child, but with proper care and watchfulness on the part of the physician, it would appear that for the mother at least, it can be greatly reduced.

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## CURETTEMENT IN PUERPERAL FEVER.

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(Concluded from February number.)

CASE VI.—Mrs. X., multipara, had a miscarriage during the third month, and from this time on has had bloody discharges from the vagina.

Four weeks after this miscarriage, which occurred on February 20, 1888, she was taken with a violent chill and a sudden rise in temperature of about  $39.6^{\circ}$ . The next day Professor Rapin performed curettement and found a large quantity of placental and membranous débris, all told, about sixty grammes. For two days the patient did not have any fever, and her condition appeared perfectly satisfactory, but on the twenty-fourth day she was taken with a severe chill and a temperature of  $40^{\circ}$ , and perspired very freely; nevertheless, since the curettement the patient was given repeated disinfecting vaginal irrigations, and on the 25th, 26th and 27th of February the uterine cavity was swabbed with tincture of iodine. Thanks to this treatment the fever began to fall after February 25, and the patient entered into apparent convalescence.

The abdomen, which had never been distended, was perfectly free from pain on pressure; the broad ligaments and the uterus were also perfectly free from pain, and in short everything appeared to be going on well, but we have since learned that our hopes were not realized, for on the 4th of March the patient was taken again with chills, and eight days later a suppurating synovitis of the sheaths of the extensors of the right foot took place, and shortly afterwards an ulcerating endocarditis appeared, and finally a right sided hemiplegia and a left sided paralysis of the face appeared following a meningitis of the base of the brain, and the patient expired on April 9.

If we have reported this case in spite of its fatal issue, it is only to show the necessity of making a curettement of the uterus in every suspicious case, and this should be done as early as possible. In the case here reported, curettement was done too late, being



about one month after the miscarriage, and at this time the infection was already generalized. Nevertheless, even done as late as this it produced an improvement, so much so that the patient was considered for some days as having been saved.

This case also illustrates how a uterus may contain masses of placenta of relatively considerable size without presenting any other local symptom than a slight amount of bloody discharge.

In the cases so far reported, with the exception of the last one, we have been dealing with cases of puerperal fever at the beginning, where operation was done in time to prevent a generalization of the infection or a septic localization in the adnexa in the form of a phlegmon or an abscess. In the case that we will now report, curettement was done many days after labor, and about ten days after the commencement of the fever, and consequently the patient was in a full puerperal septicæmia; after several other treatments had been tried without success, but as we will see, a perfect success was the result in spite of the absence of signs which would lead to suppose that infection was localized in the uterus.

CASE VII.—Mrs. H. B., multipara, age 24, had always been well up to the time of her last confinement, which occurred the 23d of April, 1894. She had had two normal labors, and at the third one she had twins. During the dilatation at this last confinement hemorrhage took place, which necessitated an internal version of the first foetus which was born dead; the second child was born alive but died on the eighth day. The placenta was removed by the physician, who found it intact. The puerperium went on, at first perfectly normal, excepting that the lochia had a bad smell from the first, and consequently for some time the attending physician gave two intra-uterine irrigations a day. Now as the patient had neither pain in the abdomen nor any gastric trouble, and as she had no fever, she was allowed to get up on the tenth day and return to her occupations.

Only on the eighteenth day after the confinement did she have a violent chill, headache and vomiting, which compelled her to go to bed. On the next day she felt better, but towards evening she again had chills, and the vomiting recommenced as soon as she took any solid food. The patient nevertheless continued to do her work, which was only interrupted when she went to bed, when the attacks of fever were too violent. But finding this condition persisted, she decided to come to the hospital. At her entrance

she only complained of chills which occurred three or four times a day, as well as being very weak, with a poor appetite and sleep. She never had had any pains in the abdomen nor in the legs. She has coughed a little bit for some time past.

The following notes were taken at her entrance on May 14: She is a woman of medium height; skin is pale yellow; the mucous membranes of the lips and eye-lids are white, and the features look drawn. The tongue was moist and slightly coated, and there was a tremor at the point and on its borders, the heart was normal, but the sounds were somewhat dull. The pulse was regularly rapid (120 beats to the minute), and compressible. The lungs gave normal sonority over their entire extent. Vesicular respiration was a little rough at the base behind, but nowhere could we hear any râles. The abdomen was very flat, soft and very pigmented; it was painless on palpation and on pressure excepting in the region of the umbilicus, where it was slightly tender. At no point could any abnormal resistance be felt, neither in the iliac fossæ nor in the hypo-gastric region. The spleen was a little bit larger than normal. Vaginal examination gave rise to no pain. The uterus was neither increased in size nor was it at all adherent. The vaginal culs-de-sac were perfectly elastic and painless. The cervix was closed at its external orifice, but would admit the entrance of one finger. The walls of the vagina were smooth and soft; on the right a small longitudinal fold could be felt, which was painless and recalled to one's mind cicatricial tissue. There was a white mucous discharge without any odor, and in small amount.

From May 14 to May 22 there was no change to be noted in the patient's condition; every day at regular times she would have one or two chills, followed by a considerable rise in temperature, and then a free perspiration would produce a sensation of well being. During the last three days the chills occurred during the night; they were very intense and lasted from one to two hours, and were accompanied by considerable malaise with dyspnœa, cyanosis of the face and limbs, and vomiting. During the chills the pulse was small and more rapid than usual, there being from 140 to 150 pulsations a minute, but nevertheless in spite of these chills and fever no change could ever be found in the condition of the abdomen; the uterus remained the same size and gave exit to a little whitish fluid mucus which was odorless.

During all this time the treatment consisted in cold packs, sixty

centigrammes to one gramme of sulphate of quinine in twenty-four hours, and alcohol. On May 22 a cold bath was tried which prevented the return of the chill on that day and lowered the temperature. On May 23, on account of the slight brownish discharge which still continued, although this was not in any great amount, it was decided to curette, and as the cervix was closed, preparatory dilatation was done by means of a laminaria tent. On the next day the tent was withdrawn; curettement was performed with an irrigating curette, with all the other antiseptic precautions. The instrument brought out large quantities of granulation tissue, which was thick and of a rosy white color. The walls of the uterus appeared to be very thin and friable. The operation was done without narcosis and was practically painless. We also excised a bit of tissue from the cervix so as to submit it to microscopic examination, and this was not felt by the patient, so we consequently concluded that there was a sort of anæsthesia of the endometrium. But unfortunately, by some mistake, histological and bacteriological examination of these granulations was not made.

On the day of the curettement the temperature fell to  $35.^{\circ}8$ , but came up a little towards the evening, and in the night the patient again had a chill, but it was not so long and was less intense than the preceding ones, and the fever was also not nearly so marked; but from the next day on there was a complete disappearance of both chills and fever, and the temperature remained below normal. At the same time the vomiting disappeared and the appetite returned, sleep was good and the bowels moved regularly. Four days after the operation, solid food was given and was well borne. The patient was given two vaginal irrigations with a solution of 1 to 2000 bichloride of mercury. She was allowed to get up on May 30, and on the 17th of June she left the hospital, still of course somewhat weak, but completely cured.

In this interesting case we were dealing with one of these instances of puerperal fever without localization, which had taken on a chronic course. It is infrequent to see a septicæmia last like this one, over a month producing daily a high elevation of the temperature. In most cases, after ten days or so, there is a decrease in the intensity of the symptoms, and a more or less rapid cure follows; on the other hand, if the temperature remains high, chills will come nearer and nearer together, and a fatal ending is soon produced.

The therapeutical interest of this case is also evident. Nothing in the symptoms that were presented by the patient would allow any one to conclude that there was a septic inflammation of the endometrium, and nevertheless from the day that curettement was performed the fever disappeared and the patient entered into convalescence. It appears to us impossible to see in this fact a simple coincidence, for during ten days the patient was treated by us in several different ways without any appreciable good resulting therefrom, and on the contrary chills kept on increasing both in number and intensity. It consequently cannot be denied that it was the curettement that cured this patient, and consequently it must have been that it was the endometrium that was the seat of the disease. In other words, it was a septic puerperal endometritis, but without any increase in the size of the uterus, and without any pain in the organ.

## THE UTERUS AGAIN.

*"No organ whose function can be maintained, should be sacrificed."*

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WE seem to be passing through a period in gynecic surgery where the extremists are widely separated. On the one hand, are the believers in radical measures, and, on the other, the advocates of conservatism. Today, the surgeon who does not possess positive views, who tries to "line up in the middle of the road," is dead to the profession. These views may point toward the conservation, or the most complete annihilation of harmonious organs. In their relation to the subject in hand they may range from vaginal drainage to total ablation of the reproductive organs. In our efforts to arrive at a solution of this unfortunate discord, we must study the grounds on which men base their opinions. This paper, therefore, will be devoted to a study of the uterus, and to an attempt to adduce some potent reasons for leaving it in its pelvic bed, in radical operations on the tubes and ovaries, and in the operations on the organ itself. The tubes, uterus, and vagina

have one common origin. The muscle fibers of the uterus are common with the tubes and vagina, and being composed of erectile tissue, they act in harmony, and this concord of action, in my opinion, should be maintained as far as possible. The entire set of the female genitalia from the mons veneris to the discus proligerus are arranged and developed to easiest facilitate coitus, to excite carnality and to persistently continue the procreation of man. All these organs, therefore, whether merely the fenders, such as the mons veneris and labia majora, or the organs of actual sexual excitement, such as the clitoris, labia minora and vaginal rugæ, or the organs which play the double rôle of sympathetic excitation and reproduction, such as the vagina, uterus, tubes and ovaries, should be spared as much as possible the onslaught of the surgeon. Conservative surgery is no new fad. It is coincident with the history of medicine. It is only since the revelations of asepsis, that surgeons have grown bold in abdominal work, and the devastation of the female pelvis has been the end.

I am as much in favor of radical work as any one when such work is necessary. I am as much in favor of the ablation of diseased organs as any one when these organs cannot be cured, and are a source of misery and a menace to life. It is only against uncalled-for surgery that I wish to interpose a word.

The consideration as to the advisability of taking or leaving the uterus in excision of the appendages is still warm. Any one who has read the April, 1897, number of the *American Gynecological and Obstetrical Journal*, cannot fail to appreciate this. The four leading articles in this number are devoted to both sides of the question; Dr. Henrotin in favor of, and Drs. Franklin H. Martin, W. Van Hook, and Alex. H. Ferguson opposed to, hysterectomy. My friend, Dr. Henrotin, whose opinion I greatly respected, and who in the past has been a most ardent advocate of conservatism, comes out in this number in favor of hysterectomy, saying, "When in operating for septic pelvic disease, it becomes necessary to remove the ovaries, it is *usually* advisable to remove the uterus also." I italicise the word "*usually*," as it is the one in the entire proposition which leads me to fall in line with the doctor. His concluding sentence, "With greater experience to be gained principally by examinations of ablated uteri, we may learn to distinguish inoffensive varieties, and if so, will leave all such undisturbed, *for*

*the smallest atom of human flesh which is harmless and does not disfigure, should always be sacred to the surgeon,"* shows that he still believes that all eggs are good except bad ones.

Dr. Henrotin cites a number of cases of excision of the appendages in which he was obliged to do hysterectomy to complete the cure, but I venture the statement that he can cite three cures to one such result, where the uterus has been left. I think that I can truthfully assert that the majority of the leading gynecologists arraign themselves on the side of woman and censure the practice of removing a non-pathologic uterus. The grounds generally given for taking it, along with the balance of the reproductive organs, are that it is useless, functionless, liable to infection, menorrhagia, metrorrhagia, malignant degeneration, and prolapse, and that it may harbor tubercular bacilli, incubate cancer cells, become infected and reinfected with gonorrhœa and be permeated with the gonococci, etc. The grounds given in opposition to this, are that it is not useless and functionless, and not more liable to infection, menorrhagia and metrorrhagia, malignant degeneration nor prolapse, and that it is not more likely to harbor tubercular bacilli, incubate cancer cells, become infected and reinfected with gonorrhœa, and be permeated with gonococci, than before parting with its tributaries.

By leaving the uterus we preserve the vaginal vault, and if properly suspended by ventro-fixation, suspensio-uteri, or by shortening of the broad ligaments which results after salpingo-oöphorectomy, the contour and natural length of the vagina is maintained, and vaginal hernia is surely averted. Certainly to this extent it is an useful organ.

Whether hysterectomy has any permanently detrimental effect on the patient's nervous system, seems to be a mooted question. Many eminent gynecologists, for example Garrigues, of New York, claim that even oöphorectomy is often followed by attacks of melancholia. Equally as distinguished and experienced men refuse to subscribe to this. If oöphorectomy is likely to disturb the mind, to lead to or become a factor in causing melancholia, how much more would hysterectomy intensify these mental manifestations. The fear, the dread, the horror of connubial infelicity, the realization of personal asexualization, the sudden and unexpected flashes of the climacteric, all seem to me to lead in one direction, to despair, neurasthenia, melancholia, insanity.

Dr. Franklin H. Martin, in a paper entitled, "Plea Against Hysterectomy When Removing the Ovaries," read before the Chicago Gynecological Society, February, 1897, makes this statement: "The nervous sequela of most serious import, and the one greatly dreaded by our patients, is one which occurs in a small percentage of cases, but is too large a percentage to justify us in ignoring it, the sequela I refer to is mania. . . . It is this complication, following hysterectomy, which induced the great Keith to completely abandon the operation for a time in favor of less dangerous procedures."

Dr. Weller Van Hook, in a paper read at the same meeting, "The Consequences of Removing the Uterus," says: "But it must be admitted by every fair-minded man, that many a woman falls into despondency or apathy, after the removal of these organs." On the other hand, my experience has furnished me convincing evidence that the mental effect of hysterectomy or pan-hysterectomy may be depressing or buoyant, depending on the cause that leads to the loss of the uterus. For example, on the 8th of October, 1896, a young married lady, barely 24 years old, was referred to me by a Milwaukee physician. She was suffering the consequences of an acute virulent gonorrhœa. The disease had advanced to the tubes and ovaries, and into the broad ligament. There was double pyosalpinx, tubo-ovarian abscesses on both sides. Pus was draining through the uterus and its walls were permeated with the gonococci. There was localized peritonitis, tending to spread, the pulse was 140 and weak, the tongue dry, the skin bathed in a clammy sweat, the temperature was about 103° F., and the patient rapidly growing weaker. She was brought to Trinity Hospital, Milwaukee, where an immediate pan-hysterectomy was followed by recovery. In this instance, scarcely six months subsequent to the operation, there are already attacks of mental depression, undoubtedly due to unavoidable and constant realization of her condition. Again, there are women in Milwaukee, from whom I have taken the uteri for cancer of that organ, and they are among the most contented people I have ever had the pleasure to meet. The belief, however erroneous, that a disease which was certain to destroy life has been eradicated, is a source of cheerfulness, joy and mental calm. Generally, too, these cases occur at or after the menopause, and the dread of rupturing family ties is not so intense as in early life. It seems, therefore, evident that it

is not the actual loss of the reproductive organs, but the realization of the loss and the dread of cancelled family happiness that weighs down the mind. Fortunately these mental manifestations after radical operations are not common.

"No organ whose function can be maintained should be sacrificed," is a quotation from Montgomery, and a rule accepted by nearly all surgeons, hence we may be permitted to add a word here for myomectomy. Since August Martin, Spencer Wells and Spiegelberg directed the attention of the profession to this operation, it has become a recognized procedure. I believe that when the uterus is not too much involved, it is not only justifiable but proper. "When the uterus is not too much involved," is a question each must decide for himself. I should relegate the operation to pedunculated subserous fibromata in which the pedicle extends into the uterine muscles, although it is an advocated operation even when it is necessary to invade the interior of the uterus.

That the uterus has no function after the excision of the adnexa, admits of much doubt. While it is the nest in which the human egg is hatched, it is also an organ of sexual excitation, and while excision of the tubes and ovaries destroy its function as a sexual organ, this, together with its construction, nerve-supply, and anatomical location, demands its preservation.

But let us consider briefly whether its function of receiving the fertilized ovum must of necessity cease with the destruction of the ovaries. I pass by the reference to such cases as are reported by Satten, Smith, Gordon, Ill, and others, of pregnancy after salpingo-oöphorectomy, for in these cases ovarian stroma had been left. The experiments of Knauer and Chrobak, of Vienna, which are being conducted today, have proven beyond cavil, that the ovary can be transplanted and will grow and resume its offices. What possibilities are here open to the profession. A discussion of the practicability of transplanting an ovary from one individual to another might of itself well occupy the attention of any body of thoughtful surgeons. I can conceive of ways and circumstances under which this might be accomplished, and firmly believe that ere long some one of our progressive friends will bring the idea to a consummation. It often occurs that normal ovaries are sacrificed for pathologic conditions of the uterus, such as bleeding fibromata and even certain forms of dysmenorrhœa, and it often



happens that diseased ovaries must be taken where there is a healthy uterus. Under such circumstances would it not be possible and practicable to operate in rapid succession and plant the normal ovaries so that they can harmonize with the healthy uterus. It is not necessary to transplant them in their wonted place behind the broad ligament. Knauer plants them at the horn of the uterus, thus obviating the necessity of much Fallopian tube. Should this line of practice ever prove successful, would it not argue in favor of preserving the healthy uterus, and that in addition to its being useful, it might be made to resume its functions. The experiments of Knauer and Chrobak were made on rabbits, and so far as I am able to discover were confined to the excision of the ovary and attaching it again to other parts of the abdomen in the same animal. They, so far as I can learn, have not yet undertaken to plant the ovary of one rabbit into the abdomen of another. On this, of course, rests the practicability of the procedure. I have, therefore, myself made a study of this, and have many times successfully taken the ovary from one and attached it to the broad ligament of another. A series of experiments begun in December, 1896, and still being conducted, shows that in the lower animals at least, if done under aseptic precautions, transplanting the ovary from one to the other is unattended with the dangers we would expect. I had hoped to be able to present a more extensive report, to prove that the function of the ovary would be reëstablished, and that conception would follow. Sufficient time has not yet elapsed to prove or disprove anything more than that the operation of transplanting the ovary in the lower animals is as free from danger as normal oöphorectomy, unattended by pyrexia, or any delay to rapid convalescence. Up to the present time I have made some twenty successful transplantations. Whenever death has occurred, it was due to shock from unnecessarily prolonged operation, too much manipulation of the abdominal organs, and too hasty preparations, cold room, cold water, insufficient protection immediately following the operation, etc. Properly done, the mortality should be *nil*. Knauer concludes his paper as follows: "That ovaries in rabbits can be transplanted to other localities remote from their normal places; that they can be successfully implanted in muscular tissue as well as in the peritoneum; that ovaries thus implanted are not only nourished, but they perform their functions, viz., to develop, mature and expel ovules." (*Cent. für Gyn.*, *Mai 16*, 1896.)

I am willing to admit that in many cases, where the appendages are sacrificed and the uterus is left, the patient seems unimproved, that menorrhagia and metrorrhagia follow, and in spite of curettage and after treatment, hysterectomy is the only means by which a cure can be effected. If a small percentage of our cases demand a uterotomy to complete the cure, vaginal hysterectomy can be done in less time than it takes to read this paper, without shock and with scarcely any mortality.

In conclusion, I would leave the uterus:

(a) Because it is an important sexual organ in its natural site, and consequently not in the way of any other pelvic organ.

(b) Because it preserves the vaginal vault, and when in suspension, maintains the contour and natural length of the vagina.

(c) Because it precludes the possibility of vaginal hernia, prevents prolapsus vaginæ, and delays atrophy of the vagina.

(d) Because it minimizes nervous shock and depressing mental manifestations.

(e) Because it maintains the pelvic diaphragm and the anatomical geography of the pelvic contents.

(f) Because in the event of successful ovarian transplantation it might be reinstated as an organ of procreation.

Milwaukee, Wis.

## TWO CASES OF RUPTURE OF THE UTERUS—POST-MORTEM CÆSAREAN SECTION—ONE CHILD SAVED.

FRANCIS D. KENDALL, M.D.

I HAVE two very short cases I wish to report:

CASE I.—I was sent for by a midwife at 3 A. M., *in haste*, July 13, 1894. She had a woman in labor (colored), and needed the assistance of a physician. I hurriedly went to her, and found the woman had just died. She was still quite warm. On examining the abdomen, I found it very large. On digital examination, I could feel the child's head, but could not ascertain the position, as the head moved upward when touched. I then tried to apply forceps, but the head slipped entirely out of my reach. I could distinctly feel the child moving—so I determined to open the body.

As soon as I opened the abdomen, the child's head popped up through the opening I had made; it was entirely out of the uterus. On examining the contents of the abdomen, I found that the uterus had ruptured the entire length on the left side, from the fundus to the os, and on the right side there was an intramural fibroid tumor, which, with the womb, weighed fourteen and a quarter pounds. The child was a well formed boy, weighing nine pounds. The woman had borne six children before without trouble, except the one before this, which was removed with instruments, alive. The woman was a negress, thirty-four years old, and had always been healthy. The child died just after it was delivered.

CASE II.—This case is somewhat similar to the above. I was again called by a midwife, this time eight miles in the country, at 4 o'clock in the morning, on January 20, 1897; when I got to the house it was 6 o'clock. I found a handsome young woman dying, but could see the child moving distinctly; I waited until the end came, which was at 6.35 A. M. Just as soon as she died I opened her, and found that the uterus had ruptured. It seemed to have just split, from the fundus toward the os. The placenta was still intact and the cord pulsating, but very feebly. The rent in the uterus was on the left side, and the child was partly out of the organ, and alive and kicking. I tied the cord and removed a fine boy weighing ten and a half pounds. He is still alive and well. The mother was a young woman eighteen years old, and this was the first time she had been pregnant. She was well formed, and weighed about one hundred and thirty pounds. She was five feet two inches high, white, and in good circumstances for a farmer's wife.

1309 Plain Street, Columbia, S. C.

## EDITORIAL.

VACCINATION.—The Public Health Reports issued each week by the United States Marine Hospital Service, have for several months shown the increasing prevalence of small-pox in this country. From January 1, 1898, to November 25, 1898, 2,553 cases of this disease were reported to the Supervising Surgeon-General. And this does not include all. For there are many points which simply report "small-pox present" or "prevalent" and do not indicate the number of cases.

By far the greatest portion of these cases were in the states of Alabama, Georgia, Arkansas and Mississippi. But there is a sufficient sprinkling of them everywhere to have made it seem wise to the department to issue a special bulletin styled a "Précis upon the diagnosis and treatment of small-pox."—Vol. XIV., No. 1. It is all interesting and instructive, but we wish to call the attention of our readers only to that part which treats of vaccination. For we are hearing altogether too much in these days of the uselessness and dangers of this procedure. A noble literary attempt to combat this fallacy is H. Rider Haggard's "Dr. Therne." If you are living in a nest of "Antis," get a copy and circulate it among your friends.

But to establish the truth of vaccination, the précis quotes from Dr. Bizzozzi of Rome, who in a recent lecture said: "Germany stands alone in fulfilling in a great measure the demands of hygiene, having in consequence of the calamitous small-pox epidemic of 1870-71 enacted the law of 1874, which makes vaccination obligatory in the first year of life, and revaccination obligatory at the tenth year. What was the result? With a population of 50,000,000, having in 1871 lost 143,000 lives by small-pox, she found by her law of 1874 the mortality diminished so rapidly that today the disease numbers only 116 victims in a year. These cases, moreover, occur almost exclusively in towns on her frontier. If it were true that a good vaccination does not protect from small-pox, we ought to find in small-pox epidemics, that the disease diffuses itself in the well vaccinated no less than in the non-vaccinated countries. But it is not so. In 1870-71 during the Franco-German war, the two peoples interpenetrated each

other, the German having its civil population vaccinated optionally, but its army completely vaccinated, while the French (population and army alike) were vaccinated perfunctorily. Both were attacked by small-pox. The French army numbered 23,000 deaths by it, while the German army had only 278 and in the same tent breathing the same air, the French wounded were heavily visited by the disease, while the German wounded, having been vaccinated, had not a single case."

Truly, that is powerful evidence if we need to quote beyond our own experience!

Probably all of us have had examples of very sore arms, obstinate indolent ulcers, vaccinia rashes, etc., and may have been puzzled as to their cause. It may not therefore be amiss to present methods recommended by these United States government experts. If they are our own, well and good. If not, they may be suggestive.

Bovine virus is, of course, the only kind employed and it must come from an accredited source and only the glycerinized lymph should be used. Surely we, none of us, have intended to buy poor points, but now we are advised not to use points at all, but the little sterile tubes. Having then the suitable material, the part to be vaccinated—usually the left arm—is bared and the skin rendered antiseptic (probably they mean aseptic) by means of soap and water or alcohol. The needle or lancet is sterilized in alcohol or the flame and the part scarified in one or more places; the virus is then rubbed in. The same needle is not used on more than one person. A lancet is sterilized each time used. (Why not a needle as well?) "If the vaccination has been successful it will be found that in the course of three or four days a small papule will appear, which soon after becomes vesicular, and is surrounded by a circumscribed areola; this gradually increases till the seventh or eighth day; in the meantime a crust forms which in due course falls off, leaving the characteristic scar resembling the pits of small-pox, the whole process occupying about three weeks."

Due care should be exercised to prevent the vaccination from being irritated or the "seal" from being broken and to prevent the wound from being infected. A vaccine shield is best for this purpose, and it is recommended that either one provided by the dealers or improvised be used, but if a vaccination shield is not used care should be taken, as above stated, to prevent the break-

ing of the "seal" and undue rubbing of the part by the clothing. Adhesive plaster should not be used for this purpose.

Now that does not cover all that one wishes to know, or will practice in this procedure, but it may contain some useful hints. Try them and see.

## NOTE.

At the regular annual meeting of the Tri-State Medical Association of Mississippi, Arkansas and Tennessee, held in Memphis, December 20, 21 and 22, 1898, the following resolutions were adopted:

Whereas, the medical laws of the various States have been so perverted by political influence as to give legislative sanction to grotesque, ignorant and dangerous sects of pretenders and charlatans; and

Whereas, the privileges granted to one of the most outrageous aberrations, namely, the so-called Osteopathy, constitute a disgrace to the States in which the "osteopathists" are legally entrenched; and

Whereas, a certain William Smith, Osteopathist, having been roundly denounced, together with his sect, by Parke, Davis & Co., and the *Medical Age*, now brings suit against both for \$25,000 damages; therefore,

Be It Declared the sentiment of the Tri-State Medical Association of Mississippi, Arkansas and Tennessee, that Parke, Davis & Co., and the *Medical Age*, are entitled to the sympathy of its members, and of all medical practitioners; that we wish and expect them to enjoy a complete triumph in repelling this legal assault; and that wheresoever a powerful House takes a bold stand in opposition to quackery, it promotes the interests of legitimate and honorable Medicine and the welfare of humanity.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### PEDIATRICS.\*

FREDERICK A. PACKARD, M.D.

ACCORDING to the By-Laws of the Society, one of the duties of the President is to deliver an address at the Annual Meeting, in which address he is expected to review the condition and transactions of the Society during the past year. Doubtless the intended purpose of such an address is to encourage the Society by showing the amount of work accomplished and to indicate means by which the aims of the Society might be better accomplished.

When the formation of this Society was under consideration, a little more than two years ago, the question naturally first discussed was the existence of a need in Philadelphia of a special association for the study of pediatrics. At the present time there is so much specialization of scientific as of other work that there is decided danger of our too closely approximating the condition of various mechanical trades wherein subdivision of work has produced exceedingly fine results in execution, but has also increased the danger of impeding progress by removing the ability of men to take broad views and apply general mechanical laws to the advancement of invention. The all-round mechanic of the olden time is disappearing and, it would seem, not without leaving a place difficult to fill. In medicine the same forces are at work, the minute attention to subdivisions producing more accurate results, but it is to be feared with some loss of appreciation of the broader views that can only be acquired by less exclusive attention to too minute details. The old system of apprenticing in the me-

\*Address of the retiring president, read at the January meeting of the Philadelphia Pediatric Society.

chanical arts produced less minutely exact but more broad-minded workers than will be found in the near future. The mushroom specialist without previous experience in general work, closely resembles the mechanic who can make a screw with the most mathematical exactness, but is without knowledge of other mechanical work or of the machine of which the screw forms a part. That specialism has advanced our knowledge of the processes of health and of disease is a proven fact, but the minute knowledge gained by painstaking investigation on the part of special workers in limited fields would be of little value unless there still existed workers in broader fields who could gather together the results of the various special workers and fit them together.

Now it has been claimed that pediatrics is not a proper specialty. This is only partly true, as it cannot be denied that the successful treatment of children certainly requires special study—study that is not acquired by ordinary medical reading and that is necessarily neglected by undergraduates of those teaching institutions wherein no provision is made for instruction in this division of general medicine by one who has devoted his time and ability to the study of disease as it occurs in infancy and childhood. I venture to assert that were most consultants of large renown in the field of general medicine to be asked to decide upon the proper constitution of a milk-mixture for an infant with enfeebled digestion, they would be as apt to make the proteid percentage 6.50 as to hit upon the due proportion of carbohydrate. It is necessary, therefore, that some with large experience should keep in touch with advancing knowledge in pediatrics. To this extent, at least, is pediatrics a specialty. Again, we have to remember that the physical signs in childhood offer some peculiarities that are apt to be overlooked or misinterpreted by one who is entirely occupied with the diseases of adults. I would merely mention in this connection the frequent occurrence of a typical cracked-pot sound upon percussing the chest of a crying child and of a square, dull patch at the base of the left lung posteriorly which simulates a localized pleural effusion and Ewart's sign of pericardial effusion.

The object of all medical societies is or should be the offering of opportunity to compare experiences, to discuss moot questions and to keep members in touch with each other's work. In societies which might be called general in character one naturally hesitates



to read a paper that would interest but a small portion of the members present, and discussion upon papers is not so full as is the case where all of those present are interested more directly in the same subject.

In treating children we find constantly that, partly owing to the marked influence of reflex disturbances, some knowledge of all the specialties is a decided advantage, even some idea of obstetrics being of value from the influence of the processes of normal and abnormal childbirth upon the health of the child. I would, in this connection, especially mention the occurrence of birth-palsies, of atelectasis, and of congenital heart disease. This, therefore, renders the ground covered by pediatric study a very broad one, so that the society has within the past year listened with interest and profit to articles especially concerning the fields of surgery, ophthalmology and orthopædics in addition to those relating to medicine proper.

That pediatrics is a study of sufficient interest to warrant the formation of what the newspaper reporters would delight to speak of as a "local" society, for its study and discussion is shown by the continued interest taken in our society by the members, which has continued through its second year. And by this sentence I am reminded of my duty according to the By-Laws, a duty that I have so far neglected in being tempted to branch out in a defence of our existence.

During the past year nine meetings have been held—the average attendance has been a little more than 38 members, the smallest being 28, the largest 67. We have had 25 papers, including Dr. Northup's interesting and suggestive paper read at the April meeting. An important part of our meetings has been the exhibition of patients, of which we have presented 13, a number that could be increased with advantage. Our membership at present is 258. During the past year we have lost by death 2, by resignation, 3 members, while to offset these, 22 new members have been elected. What to my mind is an eminently proper function for the Society to perform comes before you for the second time tonight. I refer to the appointment by the Society of a commission whose duty it shall be to endeavor to secure a better milk supply for infant-feeding. No one interested in philanthropy, in public hygiene or in pediatrics can fail to appreciate the immense advantage that would accrue from such an im-

provement in our milk supply as may, theoretically at least, be obtainable by such a commission. If this Society can be instrumental in pushing it through to completion we shall have been created by no means in vain.

From the brief statistics regarding our year's work it will be seen that our Society has safely passed through its "second summer," is in quite lusty condition and, I hope and think, with steady gain in weight. My serious endeavor to find some suggestions to offer for our future work has been fruitless. In conclusion I desire to again thank the Society for the honor that they conferred upon me in electing me to their highest office, and to state that my gratification has not been diminished after looking "the gift horse in the mouth."

## THE DIGESTION OF AMYLACEOUS FOODS.

ROBERT W. HASTINGS, M.A., M.D.

THE questions of what to eat, how to prepare it, and when to eat it have received a very large amount of attention from the earliest times. The answers given have been various and influenced by many considerations, such as race, climate, sources of possible food supplies, density of population, health, vocation, etc. Thus we find the Frenchman devoted to his pottage, the Italian to his macaroni, the Hindu and Chinese to his rice, while the Englishman and American demands his meat and bread and butter. Speaking broadly the peoples of the temperate zone have the greater variety of foods.

Modern science has devoted much time to attempts to ascertain what foods will secure the best health, produce the greatest amount of energy, and require the least waste. Working largely on an empirical basis, the military student has determined what food will give in the army the lowest percentage of morbidity, and the highest percentage of effective military power. The soldier's ration has thus been very carefully worked out among foreign nations, especially in Europe. And the same is true of our U. S. A. Commissary, only our military operations have been so limited that it required our recent war in the West Indies to demonstrate the ra-

tion fitted for active military life in the tropics. The terrible expense of men and money was unnecessary, had our officials been willing to accept the wisdom of foreign experience or the demonstrated facts of the physiological laboratories. For the researchers of the physiological chemist have proven beyond a doubt just how many grains and ounces of the various forms of food are needed to produce given results under given conditions.

A change in the food gives a different result. A change in the conditions, the food remaining the same, also produces a different result. Failure to recognize these two facts, especially the latter, leads surely to inefficiency and sickness.

History, military science, and physiological science alike have proven that among the many forms of food which we use, none is more necessary than starchy food. Even in the Arctic regions it cannot well be dispensed with; while in the tropics, it forms the chief means of sustenance. Starches are insoluble compounds of C, H and O in the proportions of  $C_6H_{10}O_5$ , and are hence known as carbohydrates. Changes which take place in the molecules consist in the separation of molecules of water ( $H_2O$ ) and the oxidation of the C to  $CO_2$ . In the physical economy, therefore, they supply a certain small amount of water and a large amount of heat and energy due to the combustion of the C. The hydrocarbons, fats, oils, etc., will furnish a limited part of this energy under some conditions, but for the most part dependence must be placed on the carbohydrates. Starches, as such, are not found in animal tissues or fluids, but carbon and water are present in nearly all of them. Glycogen, or animal starch, an isomer of vegetable starch, is found, however, in liver cells, embryonic tissue, placenta, testicles, muscles, leucocytes, and cartilage. But it is of service, apparently, only in the same way as the other starches, to furnish heat and energy.

How are these changes brought about? What are the conditions which favor them? And what are the results of failure of any of these conditions?

First, briefly, what are starchy foods? Sago, tapioca, and arrowroot are pure starch. Wheat flour contains about 75 per cent and rice 80 per cent. Our common vegetables vary from cabbage with 6.2 per cent to beans with 57.4 per cent. Apples have 14 per cent, pears 16 per cent, and bananas 23 per cent of carbohydrates. These may serve as examples to illustrate how com-

mon articles of diet contain chiefly carbohydrates, and also how greatly foods vary in their value as heat and energy producers.

Each starch granule is enclosed in a tough envelope of cellulose, called "farinose," and in this condition is practically indigestible. To break up this envelope various means are employed.

1. Grinding. By this means from the earliest time man has produced from grains, seeds, roots, dried fruits and nuts, various kinds of flour. We may possibly acknowledge that, to a limited extent, the instincts of the highest forms of animal life make use of this grinding of starchy foods. But it was reserved for man alone to discover and demonstrate the effect of heat.

2. Heat. Dry heat causes the granule of starch to swell and burst, and at  $200^{\circ}$  C. it is converted into dextrin, which is soluble in cold water. If starch is heated in 15 to 20 times its weight of water, the granules swell till at  $80^{\circ}$  C. they have reached 30 times their original size; their structure is no longer distinguishable, and they form a translucent gelatinous mass, commonly known as starch paste. If more water be added and the whole boiled and filtered, soluble starch is obtained, one part of starch dissolving in fifty parts of water.

We shall shortly see what this means chemically. Concretely and practically, it means cooking.

3. Mastication. This is a modification or continuation of the grinding process by means of the jaws, teeth and tongue. But thorough mastication by healthy people does more than this, for it exposes the free starch "granulose" to the action of the saliva. This fluid contains, besides the lubricating mucus, among other active elements a digestive enzyme, ptyalin. This substance, known chemically as an animal cryptolyte, has the power of changing starch into dextrin and even into maltose. It acts, however, only in a neutral, or a faintly alkaline, or a feebly acid medium. The action is continuous under these conditions till checked by the presence of acid. Normally, this means a period of some thirty or forty minutes in the stomach. The hydrochloric acid of the gastric secretions then becomes more than the per cent at which ptyalin can act and no further change occurs in the starches in the normal stomach.

After a longer or shorter period, perhaps an hour on the average, the acid gastric contents begins to move on into the intestine and is at once exposed to the action of alkaline secretions and

meets new digestive enzymes. One of these is found in the pancreatic juice, and is known as amylopsin; another is in the bile; and a third in the secretion of the glands of the small intestine. Whether these are identical with ptyalin we may not surely say. But they are certainly very similar and produce the same results, namely, change starch into dextrin, and dextrin into maltose, which is easily assimilable.

A word as to the relation of starch and these sugars. As before stated, a starch molecule contains  $C_6 H_{10} O_5$ , or a multiple of that formula. By the action of heat or of the enzymes just mentioned, chemical changes are produced whereby molecules of water ( $H_2 O$ ) are abstracted from molecules of starch which then unite, and we have successively the different forms of dextrin and maltose. These are all readily soluble in water and diffusable. Such portions of them, however, as are not absorbed by the membrane lining of the digestive tract are acted upon normally in the small and large intestine by the bacteria always present there, and broken up, producing various alcohols and acids, carbonic acid gas, and hydrogen. The value of these various end products of digestion of starches would be interesting, but we must limit ourselves here in this study.

To the enzymes the adjective "diastasic" is often applied. This is because they do the same work chemically as diastase, a peculiar nitrogenous body developed in cereals during their germination, which has long been of great importance commercially, because of its use in the manufacture of malt liquors. The fact that it would convert such large quantities of starch into maltose led to its introduction into medicine.

When malt extract was first introduced by Liebig, it was evaporated at  $212^{\circ}$  F., which temperature destroyed the diastase and coagulated most of the proteids. The extract, therefore, consisted only of maltose and dextrin.

Mellin's Food is a familiar form of this soluble carbohydrate food. It does not claim diastasic power, but repeated chemical examinations show the almost entire absence of insoluble starches, so harmful to young infants.

Manufacturers have now introduced the vacuum process by which they can preserve most of the diastase found in the malt.\*

\*It is well to bear in mind that we are not now considering the liquid malt extracts; they are not true extracts, being produced by the fermentation process, which of course destroys diastase.

The diastasic malt extracts which the profession have used to so much advantage in the past are of a thick consistency, and consist chiefly of maltose but with a fair percentage of diastase. These thick malts are very sweet and non-attractive in form and are not readily miscible with drugs. Many attempts to remedy these objections have been made by various manufacturers and we have had such well known products as Parke, Davis & Co.'s. Trommer's Extract, 'Toussaints', Maltine, and finally Maltzyme. This last is a clear amber liquid of the consistency of a rather thin syrup, pouring easily, and readily miscible with many drugs. One of its distinguishing peculiarities lies in its great power of converting starch into maltose.

Dr. J. M. Baird, Professor of Analytical and Organic Chemistry at the Massachusetts College of Pharmacy, has recently tested the diastasic activity of various malt extracts purchased in the open market. He tells me that Maltzyme is nearly one-half more powerful in converting starch into maltose, than any other specimen examined. One gramme of it, when in contact for thirty minutes with an excess of arrowroot starch paste, converts 6.2 grammes of the starch into maltose; this is in addition to the amount changed into dextrin. His materials were purchased in the open market and therefore no better and no worse than what we ourselves obtain.

We have found then that starches, after the action of grinding, cooking, and chewing, and after the chemical change known as hydrolysis, are of great value in the nutrition of the human body. We have shown the results of the digestion of starches when all the conditions are favorable. But suppose some of them fail, what then?

If the envelopes are not broken by grinding, they must be by heat or by mastication. If the granule gets by these three, it will act in the alimentary tract as an irritant instead of a food. If the starch is not changed by cooking into dextrin, it must be by the animal enzymes. This requires careful mastication, *e. g.*, Gladstone's rule of thirty bites on every portion eaten,—an abundant supply of saliva of normal character and a chance for it to act in the stomach. Failure at any point here produces amylaceous or fermentative or acid dyspepsia. There are a multitude of familiar examples of failures: the continued ingestion of incompletely cooked grains or vegetables; the imperfect mastication of coarsely

ground foods, of fruits, and of doughy, sticky, glutinous foods, such as fresh bread, cake, pastry, etc.; the ingestion of large amounts of acid or sweet foods. Any one of these conditions—and how often we find them all present in one meal—means imperfect starch digestion.

To be sure an attempt will be made farther along to remedy this failure, but the chances are largely against its success. Hypersecretion of acid in the stomach quickly results and a “vicious circle” is established to continue till broken.

Many have been the methods of achieving this. We have given careful direction as to the preparation and mastication of the foods, and we have neutralized the acidity in many ways. Various preparations of pepsin have been employed. Sometimes our efforts have been successful, but we have later applied the same treatment to what seemed similar cases only to be sadly disappointed. We have usually, therefore, fallen back on the expedient of very carefully limiting starchy foods, if indeed we did not exclude them entirely. The result of such careful dieting is, after a time, often a cure. But the loss to the system of such a large factor in the food supply is by no means unimportant. Especially is this true when, as often happens, other organic diseases are the cause of the failure to digest. These diseases may even be secondary to the dyspepsia and yet have become a more important cause of its continuance than the original cause itself. Note the thin, pale, poorly nourished children all about us. They eat heartily enough, but “it does them no good,” the parents say. We give them some of the preparations of cod liver oil, and often, after a time, improvement follows. How much more quickly this result might be attained, and how much more satisfactorily to physician and patient, if with the cod liver oil could be combined an agreeable preparation of diastase which would ensure the digestion of the starches. For we all well know how greedily the average child devours bread, cake, pie, cookies, and the like.

Take for another example that neurasthenic condition, so widely prevalent among Americans. One of its common symptoms is an acid, burning stomach, due to a hypersecretion of acid by the gastric glands. The forced feeding, which the exhausted nervous system demands, is much limited if all starches must be eliminated from the diet. How much more satisfactory it will be if we can break the circle at some other point and continue the administration of carbohydrate foods.

Such an opportunity seems now to be afforded us in Maltzyme. It is very agreeable in taste and appearance, and hence serves well as a vehicle for any tonic desired. It mixes immediately with water. Its power to convert starch has been established by many chemical analyses and practical tests. Care must be taken to secure a neutral medium for it to act within, and the other conditions which we have tried to carefully point out must be attended to. Not every case will be cured at once, but we believe that the use of this "digestive enzyme" has now become practical and that the attention of American physicians to it will greatly benefit their patients and their own professional reputations. Dyspepsias have various causes and require as varied treatment, but in no line of diseases does careful study win a greater degree of success.

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## REPORTS OF CASES.

THREE CASES, NON-TUBERCULAR IN ORIGIN, SIMULATING  
POTT'S DISEASE.

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IN making this report of three cases, I wish to call attention to some of the less common clinical phenomena which may occur to complicate the diagnosis of Pott's Disease. The first case was puzzling for some little time because of the occurrence of certain of the physical signs of Pott's Disease, developing in a man in whom there was an evident tubercular disease of the hip.

CASE I.—This patient was a man twenty-five years of age, a telegraph operator; single. He came to the clinic in February, 1897, complaining of great pain in his left ear, and all about the left side of his head up to the vertex. He had a marked Torticollis, the chin to the right shoulder and tipped down a little. His left hip was ankylosed and there were several sinuses which had been discharging for several years, leading down to dead bone. The tipping down of the head had caused the three or four vertebræ above the seventh cervical to stand out very much like a Kyphas. The only muscle in contraction was the left sterno-mastoid, and it was the action of this muscle which was causing the limitation in the motions of the head. Coincident with the administration of considerable doses of phenacetine and the application of a Thomas Collar to steady his head, some improvement in the symptoms took place. On subsequent examination my attention was attracted to a swelling in the left side of the neck, beginning just above the middle of the clavicle. This was palpable for some little distance upwards along the course of the great vessels, and extended below the clavicle, as was demonstrated by percussion, which revealed dulness downwards into the mediastinum. The mass in the neck was apparently deep seated. This made it seem probable that the torticollis was produced by the irritation of a deep collection of glands, presumably tuberculous, which caused a spasm of the sterno-mastoid and gave rise to pain through an involvement in the swelling of certain branches of the cervical plexus of nerves. There were no other glandular en-

largement and no evidence of any process in the lung. Large doses of the Iodide of Potash were administered with the hope that these glandular enlargements might be more or less absorbed, and such seemed to be the case, for the position of the head improved, and the pain practically disappeared after several months' treatment. Such part of the treatment as had been directed to the relief of the symptoms, on the supposition that spinal caries was the cause, was omitted as soon as the swelling of the neck was noticed. During the eight or nine months he was under observation no further symptom showed itself which would suggest the existence of a caries, but on the contrary the symptoms all improved. Glandular enlargement in the cervical region is a well recognized cause of torticollis, but a combination of this with a painful involvement of the nerves of the cervical plexus is not, so far as I know, a usual complication. When such a condition occurs in a palpably tuberculous patient, and especially when there is an easily demonstrable Kyphos in the vertebræ, it will be readily seen that a positive diagnosis is not an easy one to make.

**CASE II.**—The second case is that of a married woman, thirty-nine years of age, who had always been well except for rheumatism and neuralgia four years before coming to the clinic. There was no history of tuberculous disease in the family, neither had there been any malignant disease. Fifteen months before coming to the clinic she had wrenched the muscles of her neck, and ever since then the neck muscles have been stiff, and now all motion of the head is painful and a sensation of numbness has extended down the right arm and hand. The head is held stiffly by spasm of the posterior group of muscles and there is considerable thickening and infiltration about the cervical spines. There is no marked cachexia.

The treatment which seemed to benefit her most was rest in bed and a Thomas Collar. The interest in the case centres in the diagnosis, which it seems to me lies between Osteo-Arthritis of the spine, Pott's Disease and malignant disease, and in that order. The age of the patient, the unilateral character of the nervous disturbances, together with the fact of their being chiefly, if not wholly, sensory in nature, are against its being Pott's Disease. Primary malignant disease of the spine is rare and there was no determinable source for such disease elsewhere. The duration of this, if malignant and metastatic, would be unusual. Further-

more the improvement in symptoms which was noted under treatment would be against any malignant process. Altogether the case suggests a case of Osteo-Arthritis of the spine (cervical) recently reported by Dr. Goldthwait. The importance of diagnosis between these conditions can readily be imagined, from the point of view of prognosis alone.

CASE III.—The third case is cited on account of its interest in diagnosis, and in reporting it I do not claim that the evidence I am able to present will establish a clear case for the condition which I believe it to represent. The patient is a child aged seven years, who came to the Orthopedic clinic at the Dispensary in April, '97. The mother was a rather better observer than is usually the case in people of this class. The child had been complaining of pain in the side and back for about two weeks, and so far as was known there was no traumatic cause for the trouble noticed. She had carried herself stiffly and leaned over toward the right side. She had complained of pain in the joints of the shoulder, elbows and hips. There was at this time to be noted on physical examination only this cant of the trunk to the right as observed by the mother, and a certain amount of rigidity of the spinal muscles; no sign of a Kyphosis. The child was well developed, and nourished. The pain in joints and vertebral column was alleviated by small doses of sodium salicylate, and rest in bed. Two or three weeks later there was a slight prominence of two or three of the post spines in the lower dorsal region, but this had the appearance of some plastic material being spread over the transverse processes on the right side and not due to an antero-posterior projection of the spinous processes. In consequence of the development of this apparent Kyphas, the child was made to wear a plaster jacket. After a change or two of this jacket at monthly intervals, she carried herself straighter, and seemed improved. She was regarded at this time as a Pott's case. The mother saw the child was doing well and did not bring her back except at three months' intervals, and on one occasion for sixteen weeks she did not come to the clinic, wearing a jacket all the time. The mother had been able to change the undershirt beneath the plaster jacket, and the jacket itself had shrunk so that it was a mere string about the waist.

This sixteen-week absence was only a short time ago, and when she returned at the end of that time, the spine was in so good a con-

dition that I deemed it wise to rely upon some lighter form of spinal support, and accordingly had a back brace made for her, which she is wearing at present. At the time the plaster was removed the deformity was certainly no more evident, and I should say rather less so, than at first. The child stands erect with the normal physiological curves in the column. The spine is sufficiently flexible and there are no subjective symptoms. The general health is good, and there have been no more general articular pains of the rheumatic type.

As has been said, this case from the start has been regarded as tubercular, and treated accordingly, but the question is a difficult one to decide positively, I think, in view of the manner in which the case has been behaving. A tuberculous process located in the vertebræ is almost always primary in the bodies, rarely in the transverse processes or laminæ. In the former situation the deformity is naturally an antero-posterior one. In the transverse processes the deformity would naturally be much less or might be none at all.

In this case in the early stage of the disease the child stood leaning over to the right; there was spasm and rigidity of the muscles; later there was some deformity, antero-posteriorly, but not of the usual type; there were also associated at this time rheumatic pains in the large joints which responded promptly to anti-rheumatic treatment, and, most suggestive of all, the child has gotten well in spite of very inefficient treatment for Pott's Disease, with no increase in deformity over what she manifested at first and now has a perfectly flexible spine. Such a result in Pott's Disease in less than two years is very unusual. In view of this history I am inclined to class this as a rheumatic spine, which is, though uncommon, not unknown or unrecognized.

We have, then, three cases presenting a certain train of symptoms usually diagnostic of vertebral caries, none of which in these individual cases can be attributable to such a cause.

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## THE APPLICATION OF INTUBATION TO CHILDREN'S DISEASES OTHER THAN DIPHTHERIA.

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Translated from the French with the special sanction of the author.

BY

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O'Dwyer's procedure, which at the end of twelve years has become a method almost universally employed in diphtheria of the larynx, daily assumes more and more importance in the treatment of other stenotic affections.

In this paper, it is my purpose, relying on my personal observations, to throw light as far as possible upon each of the various indications for intubation.

A. Application of intubation to syphilitic stenoses, to non-syphilitic cicatricial strictures, and to hypertrophic subglottic chronic laryngitis.

In December, 1885, O'Dwyer treated for the first time by intubation, a chronic laryngeal stenosis. The patient was a woman of 40 years, affected with tertiary syphilis, in whose case the stenosis had been slowly developing for two years. At this time O'Dwyer devised his series of tubes designed for adults. At first he could make only the largest child's tube pass through this patient's laryngeal stricture, but at the expiration of some days he succeeded in employing tubes progressively increasing in size, until after fifteen months of continuous treatment the stricture had lost all tendency to form anew; the patient was cured.

In this manner, O'Dwyer himself from the first extended the application of intubation to the treatment of chronic stenoses; and he achieved such success in this line that in 1887 he believed himself authorized to speak these bold words: "Had intubation of the larynx proved a complete failure in the treatment of croup,

I should still feel amply repaid for the time and expense consumed in developing it, for I believe it offers the most practical and rational method yet devised for the dilatation of chronic stricture of the glottis."

In 1890, George M. Lefferts, by virtue of a relatively large number of personal observations, claimed in detail the utility of intubation in the different stenoses caused by syphilis.\* Since this author's valuable work, a large number of communications, with observations, have been made (Simpson, Valdo, Cheatham, John O. Roe, Massei, Rosenberg) which demonstrate the practical utility of O'Dwyer's procedure in the syphilitic strictures.

Apart from O'Dwyer, the following observers should be cited as having busied themselves with the treatment of non-syphilitic cicatricial stenoses, by intubation: Dillon Brown, Metzgeroff, Cholmely, v. Ranke, Rosenberg, Schmiegelow, Guyer, Hartwig and Chiari. The results obtained by these authors have only confirmed the above words of O'Dwyer.

Von Ranke, Chiari and Rosenberg have recommended the practice of intubation in hypertrophic subglottic chronic laryngitis. My esteemed friend, Dr. E. Baumgarten, a distinguished laryngologist of our hospital, also reported in 1893 a case of this kind, from our hospital records. This observation also indisputably proves in the case in question the superiority of O'Dwyer's procedure over the usual methods of treatment, especially over that of Schroetter.

The following are my personal observations:

CASE I.—Cicatricial stricture of the larynx.

Marguerite K., a little girl of  $2\frac{1}{2}$  years, fell ill on November 30, 1894, of diphtheria of the pharynx and the larynx.

Treatment by serum and intubation was carried on. The course of the disease was favorable for the little patient; but it was not so with the operation. Up to the end of the month of December, the tube could not be permanently removed, on account of the development of laryngeal ulcers (the tube had been in place in the larynx about 400 hours). The child, who had been treated until this time, in the country, was brought to the hospital December 29. Secondary tracheotomy was performed. The operation took place without difficulty; the patient breathed

\*Intubation of the larynx in acute and chronic syphilitic stenoses. Medical Record, October 4, 1890.

well through the canula. On January 16, measles developed, followed immediately by severe catarrhal pneumonia. When the tracheal wound was closed, while changing the canula, the child became momentarily cyanotic. On the 17th of February, 50 days after tracheotomy, intubation was attempted, but without success, because even the smallest tube would penetrate only as far as the rima glottidis; where it stopped, and could not be inserted in the trachea. Cicatricial occlusion of the larynx was confirmed by exploration. On introducing the probe from below upwards through the tracheal wound, it was found that at the distance of  $1\frac{1}{2}$  centimetres a *diaphragm* or *cicatricial membrane* closed the lumen of the larynx.

The child having passed the entire summer in the country, in order to regain its strength, the operation of *laryngo-fissure* was performed on October 31, after the preliminary introduction of Trendelenburg's tampon-canula, the cicatricial membrane, situated on a level with the cricoid was incised; after the operation, Collin's short tube No. 1 was inserted. On November 1, Trendelenburg's canula was removed and in its place a fenestrated canula of hard rubber was inserted. Collin's tube remained in place permanently until November 22; on practising occlusion of the fenestrated canula, respiration was effected freely through the tube, and even without the latter for a very short time. As in feeding, liquids were rejected through the tracheal canula, the tube was extracted before the meal. On November 22, the child was intubated with O'Dwyer's ordinary No. II tube, corresponding to its age, and the canula was removed. On the following day the patient expelled the tube and continued to breathe freely for two hours, entirely without the tube, but suddenly she became asphyxiated, and although the tracheal canula was immediately reinserted, no less than a half hour of artificial respiration was necessary to restore her to consciousness. On November 25, O'Dwyer's No. III tube was introduced, and from the 1st of December she was intubated only at night, while in the day she remained without the tube from eight to twelve hours and breathed well enough. A small fistula remained at the right side of the tracheal wound, which would not entirely cicatrize in spite of repeated cauterizations with nitrate of silver and the actual canterry. On December 9, the patient was intubated with tube No. IV. From the 12th to the 21st she breathed tranquilly even

without the tube. On December 21st intubation was renewed; this time the tube was arrested beneath the vocal cords and could penetrate the larynx only by strong pressure. On December 19, after a year of complete aphonia, the child commenced to speak in a high and clear voice, although the timbre was still slightly impaired. Up to January 18, the child passed entire days without the tube; when it was reinserted it was only for one or two days. The fistula of the tracheal wound not closing, its cicatricial edges were excised and immediately reunited with the Carlsbad needles and a figure eight suture. This little intervention was followed by success. Up to March 17, the patient remained alternately intubated from two to three days, and without the laryngeal tube from one to five days. From March 17, she breathed without difficulty, doing without the tube ten to twelve days in succession.

On August 4 the child was extubated and it was decided that she could do without the tube permanently.

September 23, after a laborious treatment of more than a year and a half, the child left the hospital cured, with respiration perfectly free and in excellent general condition.

Since then she has been *constantly* well; under the influence of strong emotion her respiration may sometimes be heard, but this is only for a very short time.

#### CASE II.—Cicatricial stricture of the larynx.

Charles P. entered the hospital November 22, 1892, for laryngeal diphtheria, and was intubated. In the course of his treatment by intubation, the ulcerations of decubitus developed in the larynx, and I performed secondary tracheotomy on December 12. After the operation catarrhal pneumonia ensued and the depression of strength was so marked that it was not prudent to attempt decanulement.

On March 6, an attempt at intubation was made for the purpose of removing the canula, but a tube could not be introduced into the larynx, not even one of the smallest calibre, on account of a *cicatricial welding* of the laryngeal walls (*cicatricial diaphragm*). All attempts at intubation proved futile until April 15; even with the aid of the laryngoscope, only the finest urethral bougie could be introduced and passed through the laryngeal stricture; therefore it was impossible to remove the canula. On April 15, after three forcible attempts, O'Dwyer's smallest tube



was introduced into the larynx; this tube could pass through the contracted place and the child breathed freely enough with it. On April 19, the tube No. II could be introduced into the larynx. After this, for fifteen days, intubation of a half hour's duration was performed daily; after extubation, the tracheal canula was always reinserted.

At the end of the first fortnight of the month of May, the larynx was sufficiently dilated to permanently remove the tracheal canula. The patient, entirely cured, left the service June 18, 1893, his larynx being completely dilated. We had the opportunity of seeing the child again, two years after he left the hospital; he was well developed, the voice strong, although slightly hoarse. Since his departure from the hospital he has never experienced difficulty in respiration.

CASE III.—Syphilitic tracheal stenosis.\*

K. P., a young girl, aged 14 years, was admitted to the Children's Hospital September 23, 1892. Two years before she had been treated with the aid of the laryngoscope, at the hospital, for hoarseness and embarrassed respiration, soon after had diphtheria, followed by paralysis. From that time the hoarseness and dyspnoea were constantly oscillating in their progress until six days before, the dyspnoea became more intense, and three days before an increase of suffocation had taken place from time to time; voice dry, with a harsh cough.

The girl is well developed and of good constitution; condition of the internal organs, normal. On the right side of the forehead is found a patch four centimetres in length, with a sharp bony border perceptible on its entire periphery, the skin over which is tumefied and contracted at the centre to  $1\frac{1}{2}$  centimetres. On the upper third of the left leg are found flat, irregular syphilitic cicatrices adherent in places, to the subjacent bone. Similar places are seen on the upper third of the right leg. No traces of ganglionic obstruction. Dyspnoea very intense with epigastric recession. Laryngoscopic examination (Baumgarten): Normal condition of the pharynx and larynx. On a level with the second and third tracheal rings, the lumen of the trachea is narrowed by a circular tissue of red granulations into a semi-lunar slit of six millimetres in length, and two millimetres in width in its longest diameter.

\*This case was reported in 1893.

The edges of the chink remain immovable during expiration; during inspiration they almost entirely close the lumen of the passage. Diagnosis: Chronic tracheal stenosis, syphilitic.

In this case I considered intubation clearly indicated, but I proceeded, however, with the greatest prudence and I ordered all the instruments necessary for tracheotomy to be ready, for it was to be feared that the inferior extremity of the tube might not penetrate the contracted place. However, the introduction of tube No. V. was accomplished without diminution of strength and resulted in complete relief to the respiration. The first intubation was performed September 25, the tube being left in place for six hours. After extubation, the patient said herself that she breathed much easier. Iodide of potassium for internal use was prescribed. September 26, intubation with tube No. VI.; tube remained in place three hours. September 29; intubation three hours. October 1: on laryngoscopic examination, a decided amelioration was already clearly indicated. In the cicatrix was an elliptical chink, regular, the two extremities of which already touched the two edges, anterior and posterior.

On the 1st, 3d, 7th, 9th, 11th, 13th, 15th and 17th of October, an intubation was performed, each lasting three hours.

A laryngoscopical examination on October 6 showed no further trace of stenosis. Voice still of a slightly husky timbre; respiration perfectly normal. October 18, the patient left the hospital.

That the result of intubation in this case was *brilliant* no one can deny. At first, when we saw this case, we hoped, indeed, that we might be permitted to obtain some good results, but we thought that it would be necessary to destroy mechanically a large part of the cicatricial tissue. But after the first attempt at intubation it was already evident that this intervention, in itself, would be sufficient to cause this so intense stenosis to disappear in a short time. After leaving the hospital the patient was reintubated for some hours, every two or three weeks.

#### CASE IV.—Syphilitic tracheal stenosis.

Geyza B., boy of ten years, admitted to the hospital September 8, with the statement that for a year he had been subject to suffocation; the difficulty in respiration had progressively increased; in walking, working, and also at night, the dyspnoea was more severe; sometimes attacks of suffocation come on unexpectedly. The parents are, it appears, in good health; of two other children, one died very young; the other is well.

The patient is in good general condition, and is well made. At the nape of the neck, as well as in the bicipital groove on either side, are found enlarged glands of the size of a haricot bean. The uvula is gone, the *velum palati* terminates abruptly in an obtuse angle, the apex of which is on the median line; the mucous membrane is intact. The right tonsil is indented and greatly hypertrophied; the nasal fossæ are free. The voice is clear, respiration a little sonorous with a dull sawing sound. The patient complains, in particular, of difficulty in breathing.

Laryngoscopic examination: The larynx is normal. On a level with its third or fourth rings, the trachea is retracted by a rather large cuneiform cicatricial tissue the angle of which opens forward: The posterior wall of the trachea presents a free semi-lunar space. Diagnosis: Absence of lumen, syphilitic tracheal stenosis.

On September 10, intubation was performed for the purpose of effecting dilatation of the cicatricial stricture. The tube was introduced without great difficulty, because it easily broke through the seat of the stenosis. With the tube, respiration is calm and free; the patient passes a tranquil night. In the morning, at six o'clock, he rejects his tube, but the notable relief of the respiration continues so that the patient is able to pass the night very well, even without the tube.

From this time the patient is intubated every three hours, and keeps the tube in place some hours each time; regular mercurial inunctions are also made. On September 18, the respiratory difficulty no longer existed. On laryngoscopic examination cicatricial tissue was seen only in the anterior angle, and only during strong inspiration.

On October 1, there was only a slight difficulty in breathing; on laryngoscopic examination some traces of the cicatricial tissue were perceived. On October 11, this boy left the hospital; he presented a *perfectly tranquil respiration*; examination with the laryngoscope revealed nothing abnormal.

During his stay at the hospital, the patient had received inunctions about 30 gr. of mercurial ointment; on his departure iodide of potassium was ordered for him. I have not had an opportunity of seeing this patient again.

CASE V.—Hypertrophic sub-glottic chronic laryngitis.\*

\*This case has already been reported by Dr. Baumgarten in 1893.

B. G., boy of twelve years, entered November 22, 1891; has been hoarse and breathed with great difficulty for two months.

The patient is of very strong constitution; condition of internal organs, normal.

The voice is slightly impaired; inspiration, like expiration, labored.

Laryngoscopic examination (Dr. Baumgarten): Mucosa normal; tonsils hypertrophied; on the tongue, patches of benign leucoplasia. Larynx normal. During phonation, slight paresis of the constrictors. On deep inspiration, a pale-red semi-lunar swelling is seen on either side, below the inferior vocal cords, and below the inter-arytenoid fold, a third swelling, similar but smaller. The lumen of the larynx is narrowed by these three tumefactions to a triangular chink, the base corresponding to the inter-arytenoid fold, the apex to the anterior angle. The diameter at the base is 6 mm.; in the middle of the larynx, the distance between the two projections is diminished to 4 mm.

Diagnosis: Hypertrophic sub-glottic chronic laryngitis, or chronic inflammation of the inferior vocal cords.

The patient was treated by the laryngologist of our hospital, Dr. Baumgarten, with the aid of Schroetter's dilators which he could hardly tolerate, even for two or three minutes, on account of the tracheal secretions which rapidly obliterated the lumen.

In the evening of December 13, 1891, elevation of temperature to 38° C. and respiratory difficulty.

On the morning of December 14, temperature, 38° C. In the afternoon, the lips have a cyanotic tinge and the stenosis becomes so intense that operative interference is urgently demanded. In this case I conformed to the propositions of O'Dwyer and of Krause. I did not resort to tracheotomy, but to intubation. The introduction of the tube suppressed instantly, so to speak, the attacks of agonizing suffocation. The patient was speedily relieved after expectorating about a soup-spoonful of thick viscid mucus, as the result of the irritation caused by the introduction of the tube.

December 17: In the morning, extubation was performed, the tube having been retained in the larynx 66 hours; no fever. The respiration was scarcely audible. At night the patient slept tranquilly.

December 22, 23 and 28: Intubation of five hours each

January 2, 1892, it is found on laryngoscopic examination that the swellings have considerably diminished in size. The voice is clearer; respiration is effected without noise.

During the months of January, February and March, intubation was performed every two days, having the tube in place some hours each time. From the month of April, intubation was practiced every three days with tube No. V. (Ermold's case). From May 25, tubage could be performed with tube No. VI., that is to say, with that of the largest calibre.

As the cricoid swellings did not manifest a tendency to complete regression, though each had diminished to a considerable degree, we commenced in the month of May to cauterize them with nitrate of silver twice a week until the month of July; immediately after each cauterization the child was intubated. The intubations were continued every four days during the months of June and July; then, once a week, after the month of August until September 15.

The child left the hospital September 15, 1892; before his departure he was examined with the laryngoscope. Result: Below the inferior vocal cords and the inter-arytenoid fold, are seen, on two sides only, traces of the swellings in the form of small linear bands. Respiration perfectly free, voice clear.

In this case the reduction of the infiltrated sub-mucous tissue could not be effected by the application of Schroetter's dilators, because they were not tolerated more than four minutes. The laryngeal tube, on the other hand, remained in place from five to six hours without causing the slightest pain even at the first intubation. The prolonged duration of the regressive treatment of these swellings seemed to us to be due to their seat; their localization was such that the tube could not make an excentric pressure sufficient to produce adequate dilatation.

#### B. Application of intubation to cases of difficult decanulement.

Von Ranke, in an article published in the *Journal de Henoch* in 1890, was the first to advocate O'Dwyer's procedure in difficult decanulement. The author considered all possible contingencies: inflammation of the inferior vocal cords, their paralyses, paresis in consequence of their prolonged inactivity, and the dread of decanulement. In every case, notwithstanding these obstacles, intubation proved successful.

All known works on this point in medical literature (Anderson,

Chiari, Cholmeley, Herraud, Gampert, Graser, Guyer, Illberg, Massei, O'Dwyer, Pitts and Brook, Rosenberg, Schmiegelow, Waxham) bear indisputable witness to the practical value of intubation in the cases in question. I can state, from personal experience, that in pre-intubation days, I always proceeded to the permanent removal of the canula with fear. Further, that in every tracheotomy case at the present time I perform secondary intubation, on principle, at the moment of final removal of the tracheal canula, and that the decanulement has taken place in the most simple manner, with no untoward result. Among all the observations published on this subject in general literature, the communication of Pitts and Brook is perhaps the most interesting, since these authors report two cases where the tracheotomized children had retained their tracheal canula during three and five years, and, notwithstanding this long lapse of time, final decanulement was successful with the aid of intubation.

I wish to report here only two observations from my personal practice. In one, aided by O'Dwyer's procedure, I was able to permanently remove a canula worn for six years; in the other, to conquer gradually and with comparative ease the difficulties of decanulement, which were caused by a stenosis, due to the formation of granulation tissue. This last observation is particularly interesting from the fact that it occurred in an infant of one year. The following are the details of my two cases:

Aranka K., little girl aged nine years, was admitted to the hospital August 27, 1896. Tracheotomy for croup was performed on this child six years before. Since then she has constantly worn her tracheal canula, because decanulement was impossible.

The girl is well developed and presents a good general condition. Respiration is effected freely through the tracheal wound. On closing the external orifice of the fenestrated canula, the child breathes easily by the mouth and speaks distinctly in a high voice.

On the morning of September 5, intubation was done, in order to remove the canula. This was accomplished without difficulty. Extubation and replacement of the canula at the end of twenty-four hours. September 15, after the preliminary intubation, occlusion of the tracheal fistula was attempted. The cicatricial borders of the wound were excised and a suture was made with the Carlsbad needles. On the morning of September 17, extubation was attempted, but the child could not do without the tube longer

than a quarter of an hour. September 20 she could do without the tube for some minutes only; on the 24th, for three-quarters of an hour; on the 26th, one hour. From that time on, extubation was attempted every three days, but the child endured it only from a quarter to a half hour. On October 9, she remained without the tube from 8.30 in the morning until 8 o'clock at night; and on October 12, from 2 o'clock in the morning until 10 o'clock in the evening.

On October 15, extubation was again performed; although at times the respiration became stenotic, yet the child was able to dispense with the tube until November 3, that is to say, for nineteen days, with a bearable respiration.

On laryngoscopical examination, a reddish, crescent-shaped cicatricial tissue was found on the anterior wall of the trachea, on a level with the third and fourth tracheal rings. The tube passed through this constriction with great difficulty. On November 7, extubation was again performed, but at the end of an hour the stenosis had attained a degree so pronounced that we were obliged to introduce a tube into the larynx by force.

November 12: extubation. The child remained without the tube one hour. From November 18 to 21, she could again do without the tube, as well as from December 5 to 23, that is to say, during 18 consecutive days. On December 23, however, reintubation was accomplished only with a certain effort; the obstacle in the region of third and fourth tracheal rings was distinctly perceptible. On December 25, a circumscribed purulent collection appeared on the left side of the tracheal cicatrix, and was opened on one of the following days. On the 26th, the patient rejected the tube and breathed well without reintubation, until January 13, that is, for eighteen days; extubation again took place on January 18, and the child did without the tube until February 7, or during twenty days. The final extubation was done on February 9. The respiration was calm; it became slightly stridulous when the child was excited.

Laryngoscopical examination proved that the reddish falciform cicatricial tissue, described above, was no longer visible.

On April 8, the child left the hospital, cured, rid of the tracheal canula which she had worn six years, with a perfectly free respiration and in excellent general condition. The duration of intubation had been 1448 hours, or 60 days. In place of the tracheal fistula, was found a linear cicatrix.

From recent accounts, I am able to state that the little girl, since this time, has never been attacked by respiratory difficulty, and that her health has remained most excellent.

CASE II.—D. B., little boy of one year, was intubated on account of severe croup. Treated by serum, he recovered from the diphtheria, but the ulcerations of decubitus appeared in the larynx as the sequel of intubation, and on April 12, 1897, tracheotomy had to be performed. On April 21, a fenestrated canula of hard rubber was introduced into the trachea; from this day, until April 29, occlusion of the exterior orifice, with the aid of a rubber plug, was practised now and then, after raising the internal canula. In this condition, respiration by the mouth was effected with a certain difficulty; but when occlusion of the canula was practised with the aid of a perforated plug, respiration became very easy. On the 29th, in changing the canula, a considerable quantity of granular tissue was eliminated through the tracheal wound. On May 18, decanulement was performed with recourse to intubation. On the 20th the child was extubated and remained without the tube three-quarters of an hour. On the 21st, renewed attempt at extubation, but at the end of a half hour we were obliged to re-intubate quickly on account of a sudden attack of suffocation.

Extubation on the 23rd; respiration remained sufficiently good during the six hours that the child was without the tube. On the 24th the child could be without the tube for some minutes only; the rapid reappearance of a considerable stenosis necessitated the introduction of the tube. On the 25th, in the afternoon, final extubation took place. At first, respiration was calm; towards evening it became sonorous and perceptible; at night, however, during sleep, it remained perfectly quiet. On the following day respiration was noisy only when the child cried, but soon this pathological symptom disappeared. The cure was complete and permanent; the voice is occasionally a little impaired; the child had retained the canula in all during thirty-six days.

C. Application of intubation in cases of foreign bodies in the upper respiratory tracts.

O'Dwyer himself extended the indications for intubation to cases of foreign bodies in the upper respiratory tract and recommended, in place of the usual laryngeal tubes, the trial of short, round cylindrical tubes, which he had had constructed especially for this purpose. O'Dwyer designed these tubes, primarily, for



those cases of diphtheria in which the floating of large false membranes in the trachea was undeniably established (N. Y. Medical Journal, February 26, 1887). In such cases it was his intention to favor the expectoration of the false membranes. It is well known that O'Dwyer recommended trying intubation only when the foreign body is moveable, and that he put this proposition in circulation on the ground of purely theoretical considerations, because personally he had not had occasion to treat similar cases by intubation.

As soon as I had these round tubes at my disposal,—soon after their publication, thanks to the kindness of O'Dwyer,—I tried to apply them on children who had drawn foreign bodies into the upper respiratory tract, the foreign bodies being movable. To my great regret the result has been only palliative; I could not obtain complete cure, that is to say, the removal of the foreign body from the respiratory tract without the aid of consecutive tracheotomy.

I attribute my failure to this circumstance, that in each of my observations foreign bodies of such size gained admission (a melon seed, a large bean, a gleditschia [American acacia] seed) that their expectoration through the lumen of the tube corresponding to the age of the child was really impossible.

In spite of these failures, I thought, nevertheless, that intubation in every private case of this kind should be attempted, because: (a) the possibility of rejecting through the laryngeal tube smaller foreign bodies, as, carob seeds, small buttons, small peas, is extremely probable; (b) when the rejection of the foreign body through the tube has not taken place but the child has for some hours endured this round tube well,\* we have at least succeeded in obtaining a relative success, by calming the respiration, and we have gained time to make all the preparations for tracheotomy. I do not need to insist on the necessity of continual surveillance of the patient in this case, because the foreign body may by chance become involved in the lumen of the tube, immediate extubation becoming urgent. In these cases, it is also of great importance to leave in place the safety thread attached to the tube.

\*"O'Dwyer did not hesitate to leave the round tubes in place, in such cases, even for a longer time. Under these circumstances, they can be left in position for a much longer time without danger from pressure, because the mucous membrane of the larynx is in a normal condition."

Intubation, performed even with O'Dwyer's ordinary tubes, may be equally attended with chances of success, in cases of the impaction of a foreign body in the air passages: I can cite an example demonstrative of this which I had occasion to observe last year:

Geyza B., little boy aged seven months, admitted to the outpatient consultation of our hospital December 9, 1896. The little patient's respiration is effected with a sawing noise; the voice is hoarse. The pharynx is normal, a little injected, the nasal mucus is free. The child is agitated. The cause of the appearance of this severe respiratory stenosis cannot be determined on this or the following day. However, December 12, on digital exploration of the larynx is felt back of the epiglottis, in the rima glottidis, a foreign body, elongated, directed from before backward, length  $1\frac{1}{4}$  c.m., which disappears on deep inspiration and becomes visible on expiration. The mother is questioned, who relates that on the evening of the 8th the child was given an egg in the shell, and that, while eating, it was suddenly taken ill. Immediately on this information this diagnosis was laid down, that the foreign body fastened in the glottis consisted of a fragment of egg shell.

Intubation with O'Dwyer's ordinary laryngeal tube seemed to me to be indicated for the purpose of breaking the shell in introducing the instrument, thus rendering the foreign body movable and making its expectoration possible. I performed intubation on the 13th, at noon. The introduction of the tube was accomplished at the first attempt, after having had, however, to conquer a light obstacle; nevertheless, the respiration became *suddenly* free. After intubation, on auscultation of the trachea, the movement of a foreign body during coughing could be distinctly felt. At the expiration of some minutes, the tube was withdrawn with the aid of the cord; as the child presented then a very calm respiration, the mother took it home. On the following day, December 14, the mother came to show a fragment of egg-shell which she had found in the child's napkins. Without doubt, the child had swallowed this fragment, after expectorating it in a fit of coughing which had immediately followed extubation. The mother showed us the child, whose respiration was perfectly free; the respiratory difficulty did not subsequently reappear.

I have found in medical literature only two observations of cases in which intubation was employed, without success, for the

removal of foreign bodies from the upper respiratory regions. One of these cases was reported by S. S. Mettzer (New York) in the "Medical Record" of 1887, the other by Bonain (of Brest) in the "Revue mensuelle des maladies de l'Enfance" of 1895.

The summary of these two cases is as follows:

1. Case of Mettzer.—A boy while eating nuts cried with a full mouth, and suddenly choked. The mother placed his head downward and slapped him on the back; after the administration of an emetic, the symptoms of restlessness ceased and the child became calm. On the following day, the voice was hoarse and the respiration became more and more labored. Towards three o'clock in the afternoon the breathing was very stenoctic, the child cyanotic, somnolent, the pulse small and irregular. Intubation was immediately performed with an ordinary tube; the respiration became perfectly free and the child recovered consciousness. The night passed without incident. In the morning the child expelled the tube, but the respiration remained calm. The interior of the tube was partially filled with viscid secretions, and imbedded in the mucus was found a relatively large fragment of nutshell, besides several other smaller pieces. The progress was complicated by the appearance of croupous pneumonia. At the end of fifteen days, recovery was complete. According to Mettzer's opinion, direct occlusion of the rima glottidis must be excluded here by reason of the small size of the foreign body; he explains the first onset of suffocation, by a spasm of the glottis, although the subsequent difficulty in breathing was caused by tumefaction of the mucosa, particularly by œdema of the glottis. The author admits as a probable hypothesis that the slightly pointed fragment of nutshell became impacted in the vicinity of the vocal cords, and that, during intubation, it may have fallen into the trachea and could then be expelled.

2. Case of Bonain.—A child fifteen months old inspired a splinter from the stone of a plum (this splinter, according to the information given by the mother, could not be larger than three pinheads). Towards three o'clock in the afternoon, symptoms of strangulation suddenly supervened. After the administration of emetics, the respiration became more calm and the child passed a very good night. On the following morning, however, the diffi-

1. Massei: "L'intubazione della laringe," Napoli, 1893.

2. Schmiegelow: "Revue de Laryngologie," 1890. No. 20.

culty in breathing again ensued and suddenly became so intense that Bonain was obliged to do immediate intubation at the child's house. Edema of the larynx was so pronounced that the No. II. tube could penetrate it only with difficulty. After intubation, the respiration became immediately and perfectly free; the child expectorated a little bloody mucus. The night passed without incident. On the following morning, at half-past nine o'clock, extubation was performed with difficulty, because the resistance of the infiltrated tissues had to be overcome. After extubation, respiration free, voice clear; at the expiration of some days the child was considered perfectly cured.

Bonain also interpreted the first onset of strangulation as spasm of the glottis. According to this author, the subsequent difficulty in breathing was due to edema, caused by the penetration of a foreign body into the larynx. In this case the rejection of the body passed unnoticed.

We see, from the foregoing, that, in the main, the cases of Mettzer and Bonain correspond with the results of our observations, being entirely in accordance with O'Dwyer on this point, that intubation (particularly with the round tubes) may be employed in the case of movable foreign bodies in the upper respiratory regions. By the three above described observations, we have demonstrated that it may lead to cure, and that sometimes this procedure may also be indicated, probably with success, in the case of foreign bodies embedded in the larynx. The too positive assertion of Massei and Schmiegelow, that, in such cases, intubation is positively contra-indicated, is exaggerated and should be so considered.

In my own opinion, the introduction of the tube is necessary when the foreign body is movable, but when, on the other hand, it is fastened in the larynx, the decision to attempt intubation or not to do so depends on the nature of the foreign body itself. I found the operation contra-indicated and hoped for cure only by other operative interventions, in the case of foreign bodies which, by their size, almost entirely obstructed the lumen of the larynx and were solidly impacted in it.

D. Intubation as an auxiliary procedure facilitating tracheotomy.

All those who are not only familiar with the technique of tracheotomy, but also practise this operation themselves, must

acknowledge that it is a delicate intervention frequently putting the operator's self-control to a very severe test. This procedure becomes so much the more delicate from the fact that we are obliged to perform it upon patients breathing with great difficulty and often suffocating. To diminish as much as possible the danger of the operation, we should seek to decrease or even suppress the difficulty in breathing during its performance, because if that is accomplished we transform tracheotomy into an operation that may be executed with coolness and precision. O'Dwyer has placed the method in our hands; we have only to know it and develop it into a system.

By virtue of purely personal considerations, I have practised intubation as an auxiliary procedure facilitating tracheotomy since 1891, and I have systematically followed this method in my hospital service.

During this time, I have performed, in this manner, about seventy tracheotomies necessitated by the most diverse indications (laryngeal perichondritis, ulcerations from decubitus appearing in the larynx as a sequel of intubation, multiple papillomata of the larynx, movable foreign bodies of the respiratory tract), and I am convinced that preliminary intubation in the performance of tracheotomy is of very considerable importance, from the fact that it maintains free passage for the air, during the operation.

Apart from myself, there are only five authors who have mentioned the possibility of doing tracheotomy in the manner which I have just described. But their remarks concerning this subject consist of only a few lines, with the exception of Fronz\* in Professor Widerhofer's clinic, who recently wrote an original article on this subject.

W. S. Northrup, at the end of his article on intubation in the *American Encyclopædia of Pediatrics* in 1890, also said "Intubation does not preclude tracheotomy and the tube may serve as a guide upon which to cut." In 1894, Karewsky made the following remarks in his *Manuel de chirurgie infantile*:

"From another side, intubation has been recommended as a preliminary procedure in tracheotomy (Bokay, Northrup). Carstens (work on intubation, published in 1895, at Leipzig, in the service of Professor Heubner, at the Children's Hospital) wrote the following lines in a note: "Tracheotomies have always been per-

\*Jahrbuch für Kinderheilkunde, 1897, XLIV. Bd. 1 Heft.

formed over the intubation canula, which is very strongly recommended." Finally we may read in a lecture by Professor Massei in 1895: "In cases of severe stenosis, in which tracheotomy is clearly indicated, but time would not allow of its performance, temporary intubation, provided the form of the stricture allows of the passage of the tube, will render the operation easier, not only by removing immediate danger of suffocation, but also by fixing the larynx and quieting the circulation."

I am of the opinion that if intubation, apart from this application, had not proved its value in practice and yet had presented this single advantage, it would have already deserved to find more numerous adherents.

Besides the cases which I have just cited, I have had recourse to O'Dwyer's procedure in certain cases of acute laryngitis, œdema of the larynx, spasm of the glottis, pertussis,\* multiple papillomata of the larynx, as well as in stenosis of the upper respiratory regions caused by tuberculosis of the bronchial ganglions, but I do not dwell upon these cases, owing to the insufficiency of my notes on this point.

Other authors have, however, attempted intubation in paralysis of the posterior crico-arytenoids (O'Dwyer, Cheatham, Rosenberg), asphyxia (Egidi), hysterical spasm of the larynx (Chiari, d'Ascento), tracheal stenosis caused by goitre (Waxham), tuberculosis of the larynx (Knight, Massei) and in fractures of the larynx.

The observations report so favorable results, especially in fractures of the larynx, that O'Dwyer's procedure deserves to be warmly recommended. Lefferts,† Egidi,‡ Scheier,§ Simpsom¶.

I wish to further mention that O'Dwyer, for the purpose of practising artificial respiration, has devised a special intubation apparatus which, taken in conjunction with a pair of bellows suitable for application, has already given the best results. A description of this apparatus has been published for the first time in European

\*In spasm of the glottis and pertussis, intubation was made use of for the first time to my knowledge by my former assistants, Dr. Max Brück and Dr. Julius Taub.

†N. Y. Med. Journal, Dec. 9, 1893.

‡P. Ferroud. L'intubation du Larynx, Paris, 1894.

§Berl. laryng. Gesellschaft, July 15, 1892.

¶Assoc. Laryng. Amer., May, 1892.

acute, or perhaps better, a mustard poultice followed by a cotton-wool jacket; or a stimulant embrocation may be applied such as:

R. Oil of amber,	
Oil of cloves,	aa. ℥iv
Olive oil,	ad ℥ii

(c) In the early stages small doses of ipecacuanha wine should be given with an alkali. Later, such stimulant expectorants as carbonate of ammonia and squills are indicated and a sedative may sometimes be added with advantage. For example:

R. Ipecacuanha wine,	
Spirit of nitrous ether,	aa. M. v
Solution of acetate of ammonia,	M. xxx
Cinnamon water,	ad ℥i
or	
R. Carbonate of ammonia,	gr. i
Ipecacuanha wine,	M. v
Syrup of tolu,	M. xxx
Cinnamon water,	ad ℥i
or	
R. Camphorated tincture of opium,	M. iiiss
Ipecacuanha wine,	M. v
Syrup of squills,	M. xxx
Infusion of serpentary,	ad ℥i

(d) When, in a strong child, the secretion is copious and the child is not vomiting spontaneously, an occasional emetic is of great advantage and generally gives great relief. If the baby can be made to vomit by tickling his fauces with a feather, this is often better than giving an emetic.

(e) The baby's clothes must be warm, and should not be so tight as to interfere with the full play of his chest in breathing and coughing."—John Thompson, M.D., in "Clinical Examination and Treatment of Sick Children," pp. 117 and 118.

#### CAUSES OF NEPHRITIS.

"NEPHRITIS, in the acute, subacute, and chronic forms, is a very frequent disease in infancy and childhood. Even in the newly-born, it is not infrequent. There it is either congestive (from feeble circulation, congenital heart disease, asphyxia, or exposure to low temperature), or obstructive (from the physiological rapid decomposition of the blood in the newly born; the formation of hæmatoidin-bilirubin; from jaundice; from the production of methæm-globin by chlorate of potassium, or by exces-



sive heat; or from the presence of blood in the uriniferous tubes), or irritative (by uric acid or by hæmatoidin infarctions, by the presence of purpuric or other hemorrhages, or of microbes and toxins furnished by enteritis or by an infectious disease). As nephritis is not always primary, but quite often a secondary affection, it is liable to be overlooked until it is too late. When this excessive frequency will be generally recognized fatal results will become less, and prevention will be appreciated at its full value.

The enumeration of the causes of nephritis will always be incomplete, but the list of those conditions and diseases leading to it comprehends the principal ailments of infancy and childhood. First of all there are the acute infectious diseases: Scarletina, diphtheria, measles, rubella, varicella, vaccinia even, malaria, typhoid and cerebrospinal fevers, amygdalitis (tonsillitis), parotitis and pyæmia. There are constitutional disorders, such as syphilis, purpura, and diabetes, also extensive eczema or impetigo, changes in the superficial circulation resulting from sudden exposure, sometimes also from the persistent influence of a low temperature. The latter is not so ominous as the former. A fall into the water, exposure to a rain storm may cause an acute nephritis (interstitial or hemorrhagic) which may prove fatal in a few days. The slow influence of cold temperatures is better borne, almost as well as compulsory, overwork of a kidney (for instance after the other has been removed). Stasis and thrombosis, depending on pulmonary and cardiac disease and diarrhoea, have the same result. Irritation of the kidneys by medicinal agents also leads up to nephritis; thus, for instance, chlorate of potassium, mineral acids, salicylic, carbolic, and pyrogallic acids, turpentine, naphthol, styrax, petroleum, tar, large doses of lead, phosphorus, arsenic, mercury, and manganese,—part of which are used for internal, part for external medication; finally irritation of the organ by the uric acid infarctus of the newly-born, or by renal calculi, which are by no means rare in the newly-born, gives rise to inflammation. Most of these injurious substances exhibit that detrimental effect the more the younger the infants; in them a single external application of a solution of carbolic acid has sufficed to produce nephritis.

The large number of causes of nephritis as enumerated above, if heeded, teaches at least, two lessons: first, that the supine expectancy in the treatment of digestive and infectious diseases is very liable to become criminal; and, secondly, that the effect of



every irritating remedy, both internal and external, must be carefully watched."—By A. Jacobi, M.D., in second edition of *Therapeutics of Infancy and Childhood*, pp. 433-435.

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#### LIEBIG'S FOOD.

"Take half an ounce of wheat flour, half an ounce of malt flour, and seven and a quarter grains of crystallized bicarbonate of potash, and, after mixing them well, add one ounce of water, then five ounces of cow's milk. Warm the mixture, continually stirring over a very slow fire, until it becomes thick. Then remove the vessel from the fire, stir again for five minutes, put it back on the fire and let it boil well. It is necessary that the food should form a thin and sweet liquid previous to its final boiling. Before using it should be strained through a fine hair sieve.

Pavy says in regard to this receipt: "To avoid the trouble of weighing, as much wheat flour as will lie on a table-spoon is an ounce, and a moderate table-spoonful of malt flour corresponds with half an ounce.

Malt made from barley should be used and a common coffee-mill answers the purpose of grinding it into flour, which is to be cleaned from the husk by a coarse sieve. The bicarbonate of potash is added to neutralize the acid reaction of the two kinds of flour, and also to raise the amount of alkali in the food to the equivalent of the proportion of that in woman's milk.

The ferment in the malt, during its exposure to heat, converts the starch of both the flours, into dextrin and sugar (maltose), the latter of which gives the sweet taste that is required. The newly formed products being soluble will account for the mixture being thin."—By Alice W. Winthrop, in *Diet in Illness and Convalescence*, pp. 64 and 65.

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#### INFANTICIDE.

"Mode of conducting an examination in a suspected case of infanticide.

1. *External*.—A careful external inspection of the body of the child is first to be made. Note the color, sex, length (measured from vertex to feet), the presence or absence of putrefaction, wounds, bruises, injuries, stains, etc. Take the dimensions of the thorax, shoulders and head; also ascertain the weight and the centre of the body, and note the condition of the umbilical cord.

2. *Internal*.—Observe the shape and condition of the thorax; the lungs, as to their position, volume, shape, and color; their absolute and specific weight; the position of the diaphragm; the condition of the heart as to the foramen ovale and ductus arteriosus; also the ductus venosus and the umbilical vessels. In the abdomen observe the stomach and intestines, the liver and bladder. Also notice the brain and spinal marrow.

*The Autopsy*.—The first incision should be made commencing at the centre of the lower jaw, and extending to the lower end of the sternum. Some advise to divide the lower jaw at the symphysis, so as the more completely to expose the buccal cavity, in search for foreign substances; this, however, may not be necessary. The position and appearance of the tongue are to be specially noticed. The larynx and trachea are next to be laid open, and as much of the esophagus as can now be seen.

The incision is now to be carried down on each side of the spine of the ilia, and the triangular portion of the integuments thus shaped out is to be turned back so as to examine the condition of the umbilical vessels. The abdomen is next to be opened, and the position of the diaphragm noticed.

All the viscera are to be carefully inspected, together with the *ductus venosus*, behind the liver. The stomach and bowels are to be tied and removed in order to search for poison, if suspected. The gall bladder and urinary bladder should be examined; also the presence or absence of meconium in the large intestines be ascertained.

The thorax should be opened with the scissors, preferably to the knife, at the junction of the costal cartilages. After examining the general appearance of the contents, all the great vessels are to be tied, and divided beyond the ligatures; the trachea is also to be divided at its root. The lungs are then to be taken out and weighed, and subjected to the hydrostatic test.

The heart may now be examined as to the condition of the *foramen ovale* and *ductus arteriosus*. The head may be examined by making one incision from the root of the nose back to the neck, and another at right angles from ear to ear; strong scissors should be used in cutting through the bones. The brain is to be removed and inspected in the usual manner. The spinal cord will often require examination, and sometimes also the vertebræ.

The other two questions pertaining to the infant, in a case of child-murder, have reference to its age and the interval elapsed

since its death. The age of the new-born child is to be determined by ascertaining if it exhibited the recognized character of a fully matured fetus.

The exact interval of time that has elapsed since its death can not be determined merely by medical inspection. Many circumstances would have to be considered, such as the season of the year, temperature, the place where the body was discovered, etc., before the examiner could venture an opinion; and he should always be extremely cautious in the matter, seeing how uncertain are the signs on which that opinion is to be founded."—John J. Reese, M.D., in the fifth edition of *Medical Jurisprudence and Toxicology*, pp. 269-271.

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#### CAUSES OF INSANITY.

"Among the constitutional and evolutionary causes of insanity are:

*Pubescence.*—The pubescent period is that during which the boy or girl passes to manhood or womanhood. At this period the organs of reproduction take on development, and a change in the characteristics of the person occurs. Certain desires, aspirations, and tendencies not before felt are then first experienced. It is a critical time in the life of the person, and, unless he or she is well organized, mental overthrow is apt to occur. A form of disease known as recurrent mania frequently develops at this stage of life. The age at which pubescence is established varies in different climates. For this climate it is approximately from 13 to 16 years."—C. B. Burr, M.D., in second revised edition of *Primer of Psychology and Mental Disease*, page 32.

## BOOK REVIEWS.

**MATERIA MEDICA, PHARMACY, PHARMACOLOGY, AND THERAPEUTICS.** By W. HALE WHITE, M.D., F. R. C. P. Edited by Reynold W. Wilcox, M.A., M.D., LL.D. Fourth American edition, thoroughly revised. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1898. Price, \$3.00.

This careful revision of the second edition of such a standard English medical text-book is worthy a place on every student's book shelves, or, better, study-table or desk.

In this edition the drugs have been re-arranged and an appendix classifying them according to their source has been added. The editor has made every effort to bring the subject matter strictly up-to-date and has had good success. Indeed, the portions bracketed—the indication of the editor—are among the most valuable. The drugs are arranged in scientific groups and the therapeutics of each drug indicated in connection with it.

This makes the book more valuable as a *Materia Medica* and less helpful as a therapeutic reference book. This might be remedied by an index. But the index furnished is of drugs only or chiefly, and not at all of diseases or symptoms. This objection is in large part met, however, by very careful grouping and by the preliminary discussion of these groups.

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**ANATOMY, PHYSIOLOGY, AND HYGIENE.** By E. FRANKLIN SMITH, M.D. Published by William R. Jenkins, 851 Sixth Avenue, New York City. Price, \$1.00.

This little book is practically an epitome of the author's lectures at the New York Preparatory School. This information is carefully and systematically arranged, and well illustrated. At the end there are a full set of questions and a well edited glossary which makes the volume an excellent one for high school work.

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**ALMOST A WOMAN.** By MARY WOOD-ALLEN, M.D. Published by the Wood-Allen Publishing Company, Ann Arbor, Mich. Price, 25 cents.

This little book details in simple conversational style between mother and daughter, the facts which should be in the possession of every young girl who is just arriving at puberty. The metaphors and similes are wisely chosen and will serve to help girls to understand what is so puzzling to them. Anatomical particulars and scientific terms are for the most part avoided.

**HEALTH IN THE NURSERY.** By HENRY ASHLY, M.D. Published by Longmans, Green & Co. London, New York and Bombay. 1898.

Americans will not fail to welcome this very sensible little volume, born of the author's wide experience and wisdom. All the various problems about which inexperienced young mothers are continually questioning us are grouped and clearly treated. The author's aim is to prevent disease by giving the child healthy care and surroundings, irrespective of whether the grandmother did it that way or not. The chapters on the mental development of the child may well serve as a guide and stimulus to mothers to more careful observation of these changes. We may then know far better than now how to direct the intellectual growth of our children.

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**MERCK'S 1899 MANUAL OF THE MATERIA MEDICA.** Compiled from the most recent authorities and published by Merck & Co., University Place, New York City.

This is a convenient little book for ready reference, in flexible covers, clearly printed, alphabetically arranged. It contains synonyms, forms, solubility, physical effects, therapeutic uses, etc., of the more common drugs, including those most recently devised.

Part II gives a summary of therapeutic indications, and Part III a classification according to physiological effects and is therefore practically a recapitulation of those statements in Part I.

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**3000 QUESTIONS ON MEDICAL SUBJECTS.** Arranged for self-examination. Second edition, enlarged. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1899. Price 10 cents.

If you are coming up for an examination in medical lines, whether you are student or practising physician, get this little book and quiz yourself. There are no answers in it, but each question is followed by a reference to a standard and easily accessible authority.

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**THE MEDICAL NEWS POCKET FORMULARY FOR 1899.** By E. QUIN THORNTON, M.D., Demonstrator of Therapeutics, Pharmacy and Materia Medica in Jefferson Medical College, Philadelphia. Published by Lea Brothers & Co. Philadelphia and New York. 1899.

A very convenient little volume of about the size, shape and general style of a physician's visiting list. Diseases are arranged

alphabetically and under each are given up-to-date prescriptions for the ordinary case in its various stages. If you do not wish to copy, you may yet easily get a helpful suggestion now and then. We made use of it within an hour after it came into our hands.

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**A TEXT-BOOK OF MECHANOTHERAPY** (Massage and Medical Gymnastics). By AXEL V. GRAFSTROM, B.Sc., M.D. With eleven pen-and-ink sketches by the author. Published by W. B. Saunders, 925 Walnut Street, Philadelphia. 1899. Price \$1.00.

We welcome a book on this subject from the pen of an author already so well known by his numerous papers presented through the medical press. The system practiced by the Royal Gymnastic Central Institute, Stockholm, Sweden, is advocated, modified in some points by the teachings of prominent authorities. The author is himself a physician, and his discussion of the various topics is often from a physician's standpoint and hence practically helpful to us all.

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**DOCTOR THERNE.** By H. RIDER HAGGARD. Published by Longmans, Green & Co. New York, London and Bombay. 1898.

The initials A. V. amongst us now usually stand for Anti-Vivisectionists. But in England they mean Anti-Vaccinationists. Already they have shown their power by securing a modification of the compulsory vaccination laws over there. This book is the attempt of a famous author to combat in a powerful literary form this fearful error. As physicians we owe him a debt of thanks. We devoutly trust that the fad may not gain standing here in America, but none can tell. The story is well told, showing a good degree of familiarity with the medical questions involved, and deserves the approval of the profession. Incidentally, yet fundamentally, there is an excellent little moral taught as to the intercourse between young and old physicians.

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*Eriled for Lisè Majesté.* By JAMES T. WHITTAKER. Second edition. Published by Curtis & Jennings, Cincinnati, Ohio. 1898. Price, \$1.00.

We have been much interested and vastly edified by reading this product of the pen of one of our profession, already well known for his skill in medicine. We are astounded at the breadth of learning manifested. Europe, Asia and the isles of the sea, the starrv heavens, the bowels of the earth. the culture of the city and the simple life of the peasant, the philosophy and poetry of the Greek, the Roman, the Russian, the French and the English, all

these and many more are described and quoted in the process of telling the simple romance of a Russian exile. The hero being a medical student gives opportunity to the author to express occasional medical views on current subjects.

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A TEXT-BOOK OF CHEMISTRY. By SAMUEL P. SADTLER, Ph.D., F.C.S., and HENRY TRIMBLE, A.M., Ph.M. Second revised and enlarged edition. In two volumes. Published by J. B. Lippincott Company, Philadelphia.

This is a splendid new edition of a most excellent text-book. The authors say that it is intended for the use of pharmaceutical and medical students. Which of us has ceased to be such? When chemical questions arise as they do so often in these days of new synthetic remedies, we need a modern authority to give us any clear idea of their make-up and probable or possible value. It is, therefore, as a complete, accurate and scientific reference book that the work appeals to us. Having the physician's needs in mind, the U. S. Pharmacopœia has served as a basis for the preparations discussed. For the sake of convenience there are two volumes. One contains elementary Physics, Inorganic and Organic Chemistry, and the other Qualitative and Quantitative Analyses, Pharmaceutical Assaying, Urinary Analysis and a few other selected topics of interest to the practising physician, such as Water and Milk Analyses. In this edition much new matter has been inserted under Organic Chemistry. Volume II has been almost entirely rewritten and very much enlarged. If you want a good, practical chemistry, we know of none better.

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THE PHONENDOSCOPE, AND ITS PRACTICAL APPLICATION. With thirty-seven illustrations. By AURELIO BIANCHI, M.D. Translated by A. George Baker, A.M., M.D. Published by George P. Pilling and Son, Philadelphia. 1898.

This little book contains several very well translated, printed and illustrated lectures of Professor Bianchi, and also an article on "The Phonendoscope and the Digestion of Fluids," by Felix Regnault, M.D., and another, on the "Application of the Phonendoscope in the Course of Pregnancy." This instrument has not yet met with any great favor on this side of the water. We seem satisfied with our fluorescopes and stethoscopes. But men who pretend to keep up with modern advances in physical diagnosis, must become familiar with it. We know of no more helpful handbook in gaining the necessary knowledge and practice than this. A more complete book on Phonendoscopy is in course of preparation by the same publishers.

*Handbuch der Ernährungstherapie und Diätetik.* Edited by E. VON LEYDEN. Vol. II, Part 2. Published by Georg Thieme, Leipsig, Germany. 1899.

Last October we had the pleasure of calling your attention to Part 1 of this volume. In this present portion of this great work on dietetics we find such well known contributors as v. Leyden, Klemperer, v. Noorden, Minkowski, Nothnagel, Mosler, Fürbinger, v. Ziemssen, v. Winckel and Biedert. Acute Fevers, Diabetes Mellitus, Uric Acid Diathesis, Anæmia and other Diseases of the Blood, Skin Diseases, Syphilis, Nephritis, Cystitis, Women's Diseases, Children's Diseases and Surgical Operations each receive at the hands of these experts suitable diets and dietary regulations. The discussion of each subject is full and complete.

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DIET IN ILLNESS AND CONVALESCENCE. By ALICE WORTHINGTON WINTHROP. Profusely illustrated. Published by Harper and Brothers, New York and London. 1899.

For the practical use of most of us, this volume will be better than the German one mentioned above. The high standing of the author as a nurse and matron is attested by her selection by the publishers to thus revise their well known "Diet for the Sick," now out of print. Following a discussion of beverages and foods and diets in different diseases, comes a large number of recipes for the preparation of appetizing dishes for sick and convalescent patients. We commend the book for its practical every-day usefulness, based on a thorough scientific knowledge and careful research.

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HOW TO GET STRONG, AND HOW TO STAY SO. By WILLIAM BLAIKIE. With numerous portraits. New and enlarged edition from new plates. Published by Harper and Brothers, New York and London. 1898.

The medical profession as preëminently interested in physical development as the great prophylactic of disease, will welcome this new edition of the work, now of world-wide reputation. The sensible views of the author are too well known to need any outline or criticism here.

The latter half of the book contains a physical biography of nearly a hundred great men, under the heading, "Great Men's Bodies." The photographs of these great men are excellent. If such reading will not inspire our youth to healthy emulation, we fail to see whence help can come. Get a volume, read it yourself and lend it to your boy and girl friends.



**DIET FOR THE SICK.** By MISS E. HIBBARD and MRS. EMMA DURANT, matrons at two large hospitals in Detroit. 203 pages; board sides, postpaid, 25 cents. The Illustrated Medical Journal Co., Detroit Mich., Publishers.

This is the third edition of this handy and popular little bedside book. The recipes for sick dishes have all been tried, and are those largely used by the Detroit hospitals where the two contributors of them served as matrons. Added to these are various diet tables as given by the highest authorities. The booklet is intended to be given to the family by the physician, and for such purposes, one-half dozen will be sent, prepaid, on receipt of \$1.00.

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**MASSAGE TREATMENT (Thure Brandt) IN DISEASES OF WOMEN.**

For practitioners. By DR. ROB. LIEGENSPECK, Professor of Gynecology and Obstetrics at the University of Munich. Authorized translation by Dr. F. H. Westerschulte, with seventeen illustrations. Published by the Translator, 684 W. North Avenue, Chicago, Ill. 1898. Price, \$2.50.

This book presents in very practical form, a system of gynecological treatment based on the teachings of Thure Brandt. The author has made various modifications as a result of scientific study and clinical experience. The suggestions are conservative and detailed, the illustrations are excellent, and the indications and contra-indications are most clearly stated. Hence the book is one of value not merely to the specialist, but even more to the general practitioner.

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**WHAT A YOUNG WOMAN OUGHT TO KNOW.** By MRS. MARY WOOD-ALLEN, M.D., Vir Publishing Co., 96 Hale Building, Philadelphia. Price, \$1.00.

This book addressed to young women is divided into three parts. The value of the body and its hygiene, the special physiology and laws of maturity, and the third wisely and judiciously treats of love, engagements and marriage. The author brings to her task the training of a physician, the sympathies of a mother, and the tact of a wise and judicious writer. We should be glad if every young woman in our whole land might read this book and profit by it.

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## ORIGINAL COMMUNICATIONS

### A CONTRIBUTION TO THE STUDY OF ALBUMINURIA AFTER ETHER NARCOSIS.

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ETHER narcosis offers advantages and disadvantages that still form the theme for discussion at the present time. We should consider not only those cases of death and unfortunate occurrences which are met with during narcosis but also the diseases which habitually follow the administration of ether.

Ether has especially been accused of producing catarrhal inflammation of the respiratory tract and nephritis. The latter trouble especially decided some American surgeons to prefer chloroform instead of ether for general narcosis. Emmet was the first to draw attention to the fact that ether increased pre-existing renal affections, and he recommended that a careful analysis be made of the urine to see if there were any casts or if albumen were present, the appearance of which he attributed to the effect of ether. Weir and Millard upheld the same opinion and they found that in cases of nephritis there was an increase in the amount of albumen in the urine after narcosis, and consequently preferred chloroform. Millard admits that in narcosis the kidneys are influenced by the way of the nerves; that is to say, that there is a destruction of the functions of the glomeruli produced by sudden disturbances in the circulation, governed by

the centres, from the brain through the spinal column and the sympathetic system.

Gerster goes still further and says that ether may not only increase a pre-existing nephritis, but that it may produce the disease itself. Nothnagel already in 1886 carried out some researches on animals regarding the physiological action of ether and chloroform. He etherized four animals, two by inhalation and two by subcutaneous injections of ether in the back and in the abdomen. The urine of these four animals showed the presence of coloring matter of the bile but never albumen. Microscopical examination of the organs disclosed a fatty degeneration of the heart and of the liver cells, but in a moderate degree, and the kidneys were found normal. This experimenter thought that the fatty degeneration was a manifestation of a slow nutrition caused by the changes taking place in the blood; ether and chloroform, just like phosphoric acid, acts on the red blood corpuscles.

Nothnagel made similar experiments with chloroform on four animals by subcutaneous injections in the back and in the abdomen, the results did not differ very much; he again found fatty degeneration of the liver cells, of the heart, and twice in the epithelium of the kidney, but he did not find any albuminuria. Ether, he found, produced a less extensive fatty degeneration than chloroform, and he says that rarely will one need to prolong the narcosis to the point necessary for such pathologic change to take place. At the present time since the greater majority of surgeons are in favor of ether, numerous and precise researches have been undertaken. Roux took without any selection a series of 119 ether narcoses, the urine having been examined before administration of the anesthetic, and then in one, two, three or four days after it was again examined, and still again at a little later time. None of these patients had Bright's disease, and of the 119 only four showed albumen in the urine after narcosis, *and these four patients had it in their urine before taking ether*. Only one of them (a woman with a cystitis) showed a slight temporary increase of her albuminuria, and another one of these four patients did not have any albuminuria when given ether at a later date. The largest dose of ether employed was 115 grammes and the longest time of administration was three hours.

Roux is under the impression that the dangers of injury of the kidney from ether are very much exaggerated. Feutter is

still more favorable regarding ether. He undertook researches on the urine of 150 patients before and after ether, and he never found any albuminuria present after the narcosis in those patients who did not have it before ether was administered. In four cases albuminuria was found before narcosis, and it was not increased in amount after ether had been taken, nor was there any harm done to the general health in a case where an albuminuria was not found after the narcosis, and even was absent during the following days. Feutter undertook researches on six dogs to see if in acute intoxication, or by a narcosis repeated several times, pathologic substances would appear in the urine, and macroscopical and microscopical change of the renal secretion or of the kidney tissue. The result was completely negative, both for the kidney and for the urine. This authority basing his belief on his experiments, thought himself authorized to conclude that the assertions of American authorities as to the effects of ether in patients presenting a nephritis, are exaggerated.

Nothnagel's researches already mentioned, always showed a considerable fatty degeneration of the heart and kidneys of animals to which chloroform had been given, but in none of them was any albuminuria found. But on the contrary, Bouchard and Laborde found albumen after repeated subcutaneous injections of small and large doses of chloroform in both dogs and rabbits. Toth has also reached the same conclusions. He found albuminuria in rabbits to which he had injected one cubic centimeter of chloroform; the albuminuria lasted up to the time of death, which took place one or several days afterwards, and was produced by nephritis and fatty degeneration of the kidney. He found a fibrinous exudation in the glomeruli and in the uriniferous canals, and in the urine a large number of granular hyaline casts were found.

Bouchard experimented with rabbits and dogs. He found that in a rabbit when he had injected subcutaneously one cubic centimeter of chloroform that a certain amount of somnolence was produced at the end of twenty to thirty seconds, but rarely was there a true narcosis, and usually there was a decrease in the body temperature. After an hour the animal was awake again and ate as usual, but within twenty-four to thirty-six hours it collapsed and died very rapidly. He performed more than a hundred experiments in order to explain this unexpected death, which was always, so to speak, constant. One fact which never was wanting was the

appearance of an albuminuria of considerable intensity, and which was often accompanied by an hematuria taking place about two hours after the injections and sometimes earlier if a large dose was used, and persisted up to the time of death in spite of the external signs of an apparently perfect physical condition of the animal. When the dose of chloroform was small the albuminuria lasted from twenty-four to forty-eight hours, and was never followed by death of the animal.

In rabbits having a mean weight of 1079 grammes, chloroform injected under the skin at the dose of one cubic centimeter or more always produced an albuminuria and always killed the animal. At the dose of three-quarters of a cubic centimeter an albuminuria was always produced, and death took place in about three-quarters of the animals injected. At the dose of a half a cubic centimeter there was always an albuminuria, excepting in one case, and seventy-five per cent of the animals died. At the dose of a quarter of a cubic centimeter there was albuminuria in only about fifty per cent of the animals injected, and all those who had albumen in the urine died, while those animals in which albuminuria was absent, survived. One-quarter of a cubic centimeter was injected one, two or three days in succession in the animals that had lived and albuminuria was produced and death resulted.

At a dose of less than from one-fifth to one-tenth of a cubic centimeter albuminuria and death never occurred after the first injection, but death took place when several injections of chloroform were given once a day, varying from two to ten injections.

In the dog, injections of chloroform given so that they represented a one-thousandth part of the animal's weight produced neither albuminuria nor death. At the dose of one cubic centimeter to each kilogram of each animal's weight, a slight albuminuria was produced, but the animal survived. When two cubic centimeters per kilogram were used, albuminuria appeared and death occurred later on. This was the case with the rabbit after an intermediate period of apparent good health.

Bouchard believes that death is due to the albuminuria and that it results from a nephritis with uræmic accidents. Microscopical examination only showed an intense congestion with extravasation of blood in the uriniferous tubes, without any lesion of the epithelium. We should consequently completely reject the idea of a nephritis followed by the uræmic intoxication. This

authority wished to explain the production of death by reflex phenomena produced by an irritation of the nerves in the region of the body where injection had been made. Now, in fact, like any cutaneous excitation of any amount, the application of a compress of chloroform on the skin produces a transitory albuminuria in the rabbit just as it does in man, even when all precautions are taken to prevent the vapor of chloroform penetrating the respiratory tract. In order to demonstrate this, Bouchard performed the following experiments: He cut the crural and sciatic nerves on the same side in a rabbit, and then waited for the wounds to heal, and before it was possible for the sectioned nerves to regenerate he injected chloroform into the thigh. The animal presented an albuminuria and died like the others.

Bouchard consequently supposed that these accidents were due to a poisoning by absorption of the chloroform, and the experiments that he performed appeared to partially prove this hypothesis.

Inhalation of air mixed with vapor of chloroform in sufficiently small quantity to produce no anesthesia of the animal, produced an albuminuria in the rabbit, but did not kill the animal. On the other hand, an intravenous injection of twenty cubic centimeters of chloroform dissolved in alcohol and water produced an immediate and deep narcosis, with an intense albuminuria, accompanied with hematuria, but the animal did not die. The albuminuria and the hematuria certainly are due to the chloroform and not to alcohol.

To sum up, Bouchard concluded that the albuminuria produced by subcutaneous injection of chloroform appears to depend on intoxication either by the poison acting directly on the elements of the kidney at the time of elimination of the drug, or that being transported to the nervous centres by way of the blood it influences those parts which preside over the nutrition and the circulation of the kidney.

But if an albuminuria may be explained by an intoxication, the same cannot be said of death following these injections, since chloroform introduced into the blood by inhalation or by intravenous injection does not produce death, although it produces both narcosis and an albuminuria.

In man albuminuria has never been found after a subcutaneous injection of chloroform, even when five cubic centimeters have

been injected at one dose, but it has been seen in a temporary manner after narcosis by inhalation.

Toth has come to similar results. He noticed the appearance of albumen in the urine of rabbits in which he had injected one cubic centimeter of chloroform; it was present up to the time of death, which occurred in one or several days afterwards, and was due to a nephritis and a fatty degeneration of the kidney. He found an albuminous exudate in the glomeruli, and in the uriniferous tubes were found granular and hyaline casts in large numbers.

Nothnagel, Laborde and Toth gave subcutaneous injections of chloroform to animals, but in 1887 Ungar gave inhalations of the drug to dogs and kept them chloroformed for several hours. At the autopsy he found a fatty degeneration of the heart and liver, as well as a degeneration of the kidneys, the striped muscles, the stomach and other mucous membranes. These researches were verified by Strassmann, and gave the following results: After a prolonged administration a fatty metamorphosis of the liver and heart took place, but the other organs were rarely attacked. Any debilitating action like that of hunger or loss of blood favors the appearance of these pathologic changes which certainly take place more slowly in younger and stronger subjects. The increase of nitrogen eliminated, in dogs that had eaten nothing, under the influence of chloroform proved that it is an increased dissimilation of nitrogenous substances, or a degenerative or a fatty infiltration. The fact that the cases of death are those in which the cardiac lesions were most marked allows us to admit that we must seek the cause of death in these lesions. In the non-fatal cases the degeneration of the organs disappears in a few weeks. An injection of morphia before narcosis diminishes the quantity of chloroform that is necessary to produce anæsthesia and likewise the lesion following its administration. With ether the same conditions are not so marked, but on the other hand, with pure ether narcosis as complete cannot be obtained.

Strassmann observed that cats and rabbits presented a variance with dogs on this point, a fact that should be taken into consideration when trying these various experiments on man.

For a long time the profession was contended with the presence of bubbles of nitrogen in the large veins and the heart in patients dying from chloroform, and Kappeler was the first to draw attention to this point.

After more than fifty autopsies, in which he could in no way understand the cause of death, he arrived at the conclusion that the appearance of bubbles of nitrogen in the vessels can in no way be put on the count of chloroform, but that it is due to phenomenon of cadaveric putrefaction. He observed degenerative changes in the kidney, especially of the fatty type, just like those found in the heart and liver. Dixon and Lavert found a renal hyperæmia in one case. Fraenkel relates the case of a woman in labor who died after having taken chloroform for about two hours. Microscopical examination of the organs showed that there was a fatty degeneration of both recti muscles of the abdomen, and the cardiac muscles and of the endothelium of the uriniferous tubes. This woman, who was strongly built, had been well up to the time that chloroform was given and presented no other organic lesion which could explain her sudden death.

Fraenkel considers that the results obtained by experiments on animals, submitted to a prolonged narcosis with chloroform, were similar to those obtained in man. Now it is well known that certain substances produce fatty degeneration of the heart and liver as well as that of the kidneys and striped muscles, and he believes that he can attribute the death of his patient to the direct action of chloroform.

Terrier observed in six cases out of nine the appearance of albuminuria after narcosis, and in his opinion, the duration of the administration of chloroform has no special influence over the production of the appearance of albuminuria.

In 1890 Lutze published researches from which it results that in eighteen cases out of twenty-seven albuminuria followed the administration of chloroform. All the patients were women, and the duration of the albuminuria varied to from one to twenty-two days; none of these women had albuminuria before narcosis, and the small quantity of albumen found in the urine afterwards was in no way in direct relation to the duration of the narcosis, nor with the loss of blood sustained.

In spite of the appearance of albumen and blood in the urine Lutze does not believe that there is nephritis; in one case he believed the presence of blood was due to the lochia and in another to a miscarriage which had taken place; in the three other cases he thought it due to hemorrhage. He never was able to find casts in the urine, and he says that albuminuria is the result of a blood stasis in the renal vessels, or is due to an inflammatory



change in the walls of the glomeruli. It is possible that a lessening of the cardiac activity results from a narcosis, which is followed by stasis and an increase in the lateral pressure of the renal veins from which albuminuria results.

Luther has written on the complications which follow the administration of chloroform. According to the researches of this writer, the clinical picture of the microscopical chemical examination of the urine are in complete accordance. When albuminuria was present before the narcosis, severe reactions were produced, such as nausea, vomiting, etc.; and the urine showed changes such as albuminuria and casts, which co-existed in the greater number of cases and disappeared usually in a few days. The larger number of casts were hyaline, while the granular type were few in number. The increase in the quantity of albumen would seem to be in direct relation with the duration of the narcosis.

Rindskopf examined the urine of eighty-three subjects who had undergone a narcosis by pure chloroform, and with chloroform manufactured by Pictet. He found changes in thirty-one cases. In six there was albuminuria, in six there was albumen and casts, in nineteen casts alone were present, in four cases there were casts, and twenty-one times there was a considerable increase of leucocytes, and nineteen times epithelium was present having different origins. He found albumen only in traces and which completely disappeared at the end of the third day.

The casts were more abundant in the morning following the operation, and these progressively disappeared and were entirely absent after the sixtieth to the seventieth hour following the operation. The casts were always hyaline. He also found quite often agglomerations of the leucocytes and drops of fat. In ten cases renal epithelium was present.

Rindskopf attributes a capital part to the quantity of chloroform given and the duration of the narcosis. He concludes that in many cases of narcosis by chloroform inhalation changes are produced in the parenchyma and the kidney, and bases his assertion on the fact that he has often met with agglomerations of leucocytes and fat globules in the casts. Contrary to Luther's opinion, he does not see a relationship between the clinical aspect and the pathological changes of the urine.

Alessandri found albuminuria in from 10 to 60 per cent in 300 administrations of chloroform. The albuminuria may be slight

and generally only lasts two or three days, but exceptionally it may continue and be accompanied by granular or fatty casts. The albuminuria appears to be in direct relation to the quantity of chloroform, the length of the narcosis and the amount of vomiting following.

When vomiting is slight the albuminuria is infrequent. The personal disposition of the patient and disease of the kidneys have likewise a great importance. He always found more or less considerable change in the epithelium of the renal gland in his experimental work on animals, and he concludes that chloroform should not be given where any amount of kidney disease is present and advises analysis of the urine to be made in order to avoid any complication.

Barensfeld examined the urine of 150 patients who had been given ether and only found albumen four times. The first case was a man of 47 years, upon whom multiple incisions had been made for an acute glossicitis, but he had had an albuminuria for a long time. The renal trouble was in no way changed by the narcosis and the albumen remained just the same before and afterwards, viz., 15 grammes per litre. The second and third cases were strangulated hernia, and in both these patients there were traces of albumen before ether was given; the percentage did not increase after narcosis. The fourth case was a man 32 years old, operated upon for a congenital inguinal hernia; there was no albumen present before the anesthesia, but afterwards 10½ grammes to the litre were found. During the next five days it progressively diminished and completely disappeared. Subjectively the patient was in excellent condition, there was no rise in temperature, and no lesion of the heart could be found. Barensfeld believes that nephritis from ether is pure imagination, and in order to show the inoffensiveness of etherization, as regards the renal parenchyma, he relates the case of a child, aged 3½ years, who had a hydronephrosis of the left kidney, this organ being removed by operation. Ether was very well borne, and there was not a trace of albumen in the urine afterwards.

Körte is also of the opinion that ether has no bad action on the kidney. 203 of his 600 cases did not have albumen either then or after the use of ether. In seven patients who had albuminuria beforehand, the disease was not increased by the ether, and in those patients, two of whom had only one kidney, there was a transitory albuminuria after ether had been given.

Selbach also found the kidneys intact in the animals upon which he experimented. Howard relates the case of a miscarriage which was brought about by a chronic nephritis. The urine contained a large amount of albumen and many hyaline casts. There was no bad effect on the renal disease after narcosis of 15 minutes, while on the contrary, the symptoms of stasis rapidly disappeared.

Tschmarke has never been able to find any influence of ether on the kidneys. Kelley and Ghiskey prefer the use of chloroform to that of ether, basing their assertions on the examination of urine before and after narcosis. In 200 cases of ether narcosis five times the urine contained hyaline and granular casts beforehand and 18 times hyaline casts, and 11 times granular casts after narcosis. In 23 per cent of the cases an albuminuria was found before operation and in 33 per cent after ether had been given, and they attribute this increase to a more concentrated urine and to a slight cystitis. Ungar gave chloroform to dogs and always found a fatty degeneration of the kidney after a prolonged narcosis. Strassmann and Ostertag controlled these experiments. The first found a fatty degeneration of the internal organs, such as the liver and heart. In the cases which were not fatal this pathologic change disappeared in a few weeks. A long administration of chloroform to dogs produces death of the animal in a few hours, thirty at the most after narcosis has been stopped, and that after an apparent complete recovery from the anesthetic. As a cause of death he believes that the changes in the heart are responsible. Ostertag concludes that there is a fatty degeneration of the organs of animals that have been chloroformed, because there is an increase of nitrogen in the urine.

Eisendrath examined chemically and microscopically the urine of 130 patients before and after narcosis, and put aside all those cases where albumen casts might have been caused by fever or by any morbid condition. Of these 130 patients 70 were given chloroform and 60 were given ether, and here are the results which this experimenter obtained: In 13 cases the urine contained albumen before anesthesia. In eight of these cases it was increased after narcosis, four times with ether and four times with chloroform. In four cases where no trace of albumen could be found before narcosis, a great deal was found afterwards. These were two cases of carcinoma of the uterus, one of which was operable and the other inoperable. The other two cases were

a movable kidney, and an old dislocation of the hip in which amyloid degeneration was suspected. Of these four narcoses two were produced by ether and two by chloroform.

In one case of amyloid kidney there was  $2\frac{1}{2}$  grammes per litre of albumen before and 10 grammes per litre afterwards.

This increase disappeared and two weeks later only traces could be found in the urine. The same patient was given chloroform six weeks later and he had at that time three grammes of albumen per litre before the operation and nine grammes per litre after narcosis, and this increase of albumen lasted much longer than after narcosis with ether. In the other cases where traces of albumen were present before narcosis no increase in the amount was found afterwards. In one case of chronic nephritis with very slight traces of albumen none could be found two days after narcosis. Urine, which was normal before anaesthesia, showed albumen in 15 cases after ether and in 23 cases after chloroform had been given. In other words, 25 per cent with ether narcosis and 32 per cent with chloroform.

In one case, that of a pregnant woman, whose urine had been perfectly normal for several weeks before the narcosis, there was a trace of albumen afterwards. In another case albumen appeared the day following the narcosis in a woman eight months pregnant, on whom an artificial anus was made, on account of a stricture of the rectum. Microscopical examination of the urine after narcosis showed granular and hyaline casts, renal epithelium and epithelial casts 32 times (15 cases of chloroform narcosis and 17 of ether narcosis); this experimenter was able to find the presence of casts without albuminuria in the urine, which was normal before narcosis. The casts were for the greater part hyaline, often granular, blood or epithelial. He often found renal epithelium which had undergone a fatty degeneration. Of 48 cases where he found albuminuria he noted the presence of casts at the same time in 21 cases, the narcosis being with chloroform 12 times and 9 times with ether. In 13 cases the author found urine and granular casts before and after narcosis, this being seven times with chloroform and six times with ether. In one of these cases Eisendrath found renal lesions when the organ was examined microscopically. It was the case of a patient of 64 years, who underwent a radical cure for a strangulated hernia, which had been present for three hours. Chloroform was given only an hour and a half, the patient receiving only 60 grammes. The

wound healed by first intention. The urine, which was normal before the operation, showed numerous casts and epithelial cells for a few days following it, but chemical analysis revealed no albumen. Eleven days after the operation the patient died suddenly from a pulmonary embolus, and microscopical examination showed a very extensive necrosis of the epithelial cells of the cortex of the kidneys. The operation having been done with all the necessary antiseptic precautions, the author believes that the necrosis in the kidney was due to chloroform. He has never noticed any relation between the vomiting and the pathologic changes in the kidneys. In his experiments he found relatively less change in the child than in the adult, with ether as well as chloroform.

The conclusions are as follows: Firstly, a pre-existing albuminuria is more frequently increased by a narcosis with ether than with chloroform. Secondly, albuminuria is present more often after chloroform narcosis than after ether, the proportion being 32 per cent with the first and 25 per cent with the second. Thirdly, in patients having an amyloid degeneration of the kidneys the influence is identical with both anesthetics. Casts with or without albumen are present with equal frequency after the use of chloroform or ether, but they disappear more rapidly after ether than after chloroform narcosis.

Weir has examined 34 cases and in 25 ether in no way changes the renal secretion. In nine cases he found a slight quantity of albumen in the urine after operation, but five of these patients had it beforehand, in which cases the proportion of albumen remained the same; in four other cases the urine contained epithelial cells, leucocytes and a few hyaline casts for a short time after ether had been given.

Norris mentions two cases of death occurring after operation for cataracts, the narcosis having been produced by ether. Both patients came out of their narcosis in apparently excellent condition, but coma soon took place and the two patients died a few hours afterwards, the second one dying 18 hours afterwards. Autopsy demonstrated the presence of Bright's disease. This author attributes both to an excessive renal congestion produced by the use of ether.

Da Costa found a marked decreased hemoglobin of the blood and red blood corpuscles after ether had been given, and this was more marked if the blood of the patient was diseased before narcosis, for example with anaemia. The white blood corpuscles

showed irregular changes which were not characteristic and variations which were not more pronounced than those observed in the normal condition. This authority believes that nephritis which occasionally arise after etherization may be due to a cooling down of the circulating blood.

Friedlander examined the urine of 100 patients before and after chloroform narcosis, and he concludes that chloroform may produce albuminuria due to the albumen of the blood and that of the cells; the composition of the urinary sediment proves that nucleo albumen which is present in the urine comes at least for the greater part from the renal tissue itself. The changes in the functions of the kidneys is usually only temporary and is only revealed by an albuminuria.

According to the researches of Patien albumen will be found 6 times out of 50 before narcosis; after anesthesia albumen will be found 22 times out of 63 cases, and after operation albumen will be present 54 times out of 74 cases.

From this it may be concluded that the administration of chloroform is susceptible of producing a temporary albuminuria and that this happens once out of every three administrations, when all traumatism and any hemorrhage can be excluded.

Kart and Mester performed experiments, firstly on animals in which a chronic intoxication with chloroform had been produced, and secondly, on patients who had been given this agent in operations of long duration. They found that in both cases there was a disturbance in the nutritive changes, and a fatty degeneration of the organic parenchyma in the intoxicated animals. The animals lost weight, and a more considerable destruction of albumenoid matter was revealed in the urine by an increase of nitrogen and chlorides. These experimenters always found a more or less marked urobilinuria in man after a prolonged anesthesia. The acidity of the urine underwent a more marked increase, being nearly double or treble the normal.

Wood concludes from his experiments on animals that it is certain that ether is present in a free state in the blood, and that it is not eliminated in an appreciable quantity by the kidney. During ether narcosis the kidney undergoes congestion and microscopically the renal cells show a cloudy tumefaction. Repeated and prolonged etherization produces a desquamation of the epithelial cells, and if the kidney is diseased ether is dangerous, and in cases where there is the beginning of an uræmia there is danger of a

sudden death during anesthesia on account of the action of ether in the respiratory centres, which are damaged by the condition of the patient.

Doyer found albuminuria in thirty-three per cent of cases where chloroform narcosis had been given and forty-three per cent with ether; in twenty-seven per cent of the cases there were casts. He does not believe that these were due to a renal stasis, but to a very slight and transient nephritis. The specific gravity of the urine, its large amount, and the absence of coloring matters of the blood contra-indicating any change of the red blood corpuscles, are the facts which would speak against this opinion.

Konwer found traces of albumen in five cases out of one hundred narcoses, but he never found any fibrinous casts, although the greater part of these narcoses lasted for some time.

Wunderlich examined 125 specimens of urine, 70 of which were from patients who had been given chloroform, and 50 from patients who had been etherized. Thirteen times he found albumen which was not present before narcosis. Five times it was present in the urine before anesthesia; in three cases it was increased afterwards; in the five cases where chloroform was used, albuminuria was transient. These five cases were a strangulated hernia, two, diseases of the kidney, one was a cardiac case, and the fifth presented a permanent elevation of the temperature; thirteen other cases were inguinal hernia, actinomycosis of the face, caries of the foot, gangrene of the foot from freezing, tuberculosis of the breast, carcinoma of the face, necrosis of the tibia, carcinoma of the lymphatic glands, traumatic paralysis of the radial nerve. Anesthesia was produced six times with chloroform, six times with ether and once with both agents. The albumen found in these thirteen cases was only in minute proportions, and in ten of the patients disappeared in 24 hours, in two at the end of two days and in the last patient in four days. Albumen was found in 6.9 per cent of the cases where ether was used and in  $11\frac{1}{2}$  per cent where chloroform was employed. Microscopically, he found epithelial cell leucocytes more abundant after than before necrosis. Very infrequently red blood corpuscles, hyaline and granular casts were found, while epithelial casts were the exception. Casts were found in thirty-seven cases where no albumen was present before narcosis in 30 patients. After anesthesia with ether in 61 narcoses where the urine did not present any albumen he found casts 15 times; that is to say, in 24.6 per cent of the

cases. After anesthesia with chloroform he found it 16 times out of 46 cases, in other words, 34.8 per cent of the patients. In the 13 patients who presented albumen, casts were present 11 times. Wunderlich does not believe that there was nephritis, but he believes that the albuminuria was due to the physiological action of the ether and the chloroform on the blood pressure. He does not admit that the general condition of the patient had any influence on the appearance of the albumen or the casts, and he does not consider that the quantity of the anesthesia used had any influence.

In order to study the question a little more closely we undertook some researches on the urine of 140 patients in the surgical clinic of the University of Geneva. We employed first re-agents for all the urine examined, heat and nitric acid, Esbach's picric acid re-agent, and when we found albumen before narcosis we controlled its reaction by acetic acid and ferrocyanide of potassium.

We did not use the centrifugal apparatus for the urine in the microscopical examination, as we only examined the deposits that formed at the bottom of the glass, and they were filtered before examination when necessary. The researches were carried out on the urine of 117 males and 23 females, they being from either children, adults, old people, varying in age from 10 to 70 years. We only selected patients who were examined for any disease of the internal or external genital organs, and we also left aside any urine that was purulent or appeared to be. We examined relatively few women in order to avoid the dangers of error from menstruation, leucocytes, etc. The first urine voided after operation was examined.

Of the 140 examinations 14 did not urinate before anesthesia, 14 presented albumen afterwards where there was none before the administration of ether, and in 112 it was absent both before and after etherization. The 14 cases of albuminuria before narcosis were for varicose ulcers, three cold abscesses, two fractures of the hip, one necrosis and three lipoma. Of these 14 patients 10 had Bright's disease, viz., the four cases of varicose ulcers, two cases of cold abscess, two fractures of the hip and three lipoma. The four others presented amyloid degeneration of the kidneys, this being present in the three cases of cold abscess and in the case of necrosis. In 11 cases the albumen was examined the day following the operation, or six hours afterward was found increased af-



ter the operation; in one case the albumen had diminished from 1.80 per cent to 1.10 per cent, and in two cases it had not increased in amount.

In all these cases we measured the quantity of albumen 10 days after the operation, and in one 24 days afterwards; that is to say, at the time when the patient left the hospital.

In the 14 cases where albumen was entirely absent before operation and where it was found in traces after it, it completely disappeared in eight cases the day following the operation, and in the six other cases where it was in such minute quantity that it could not be established the first day after the operation or on the day itself, it had disappeared by the third day. In two other cases the presence of albumen taken the first day after the operation was 50 centigrammes to the litre, and the second day it could no longer be established, the third day there was still traces and on the fourth day it had completely disappeared; in another case it was present in traces and had entirely disappeared on the sixth day following the operation. Albumen was constantly present in ten per cent of our cases. Microscopically we found first, epithelial cells coming from the urethra, bladder and vagina; secondly, leucocytes which were more numerous after the etherization. It is difficult to say whether they came from the urethra, bladder or kidney. Wunderlich, however, believes that they came from the urethra; thirdly, red blood corpuscles in four cases after narcosis, and in three in six cases we found hemorrhagic casts; fourthly, biliary pigment in only one case; fifthly, indigo once; sixthly, crystals of oxalate of lime, uric acid and urates; seventhly, hyaline, epithelial, granular and hemorrhagic casts. We never were able to detect the presence of sugar after etherization.

After the study we wish to formulate the following conclusions. First, in the subjects examined in this study whether afflicted with Bright's disease or not we never were able to notice any harm done to the general health after narcosis with ether. Second, a persistent albuminuria will often be increased by the use of ether. Third, an ether narcosis may produce an albuminuria, but it is always transient. Fourth, ether may produce casts. Fifth, if casts were present before ether was given, they are increased in number after etherization.

According to our personal researches and basing ourselves on Wunderlich's work, we can not admit that the albuminuria pro-

duced by ether is due to a nephritis, and we believe that it is caused by the physiological action of ether on blood pressure.

Now how do ether and chloroform act on the heart? Lenz, Brunner and Gall remarked that there was a diminution in the blood pressure when chloroform was given. The blood pressure increases in the large arteries at the beginning of anesthesia, and often later on becomes lowered. Scheinson also found that there was a decrease of blood pressure in his experiments on animals, but he did not note any elevation at the beginning of the administration of the anesthesia. This decrease of pressure may either be produced by a diminution of the tonus of the arteries, from a paralysis of the vaso-motor system, or from a decrease in the cardiac impulsion of both these cases may be united. Scheinson found the same phenomena in rabbits' ears during the administration of chloroform that Claude Bernard found after section of the sympatheticus in the neck; that is to say, a dilatation of the vessel on account of the action of the vaso motors of the bulb.

He noticed that chloroform acted directly on the cardiac muscle by diminishing its activity, and that it diminishes arterial pressure and slows the circulation of blood as well.

Now how does ether act? Gall performed comparative experiments on the action of chloroform and ether as regards the blood pressure; he showed that the decrease is less marked and less rapid with ether, 127 millimeters of mercury with ether and 36 millimeters of mercury with chloroform. The English Commission on chloroform which took place in 1863 proved the same thing. At the beginning there was an increase in the heart's action which was longer and more durable with ether than with chloroform, and then there was a depression which was less marked with ether than with chloroform.

Schiff believes that the decrease of blood pressure produced by ether is due to a paralysis of the peripheral nerves of the blood vessels. Knoll found in many experiments that ether diminished the cardiac force by a lessened tension in the vessels, and many others have come to the same conclusion.

## EDITORIAL.

WITH this issue we present the last of the papers of Dr. Bokai on Diphtheria and Intubation. We hope our readers have been interested and helped by them. No new theories or facts have been advanced but the beliefs and practices of our most expert American physicians have been well substantiated. And in these days it is always advantageous to have all possible backing to any proposed line of treatment.

Intubation has been proven by these cases, and in multitudes of others, reported and unreported, to be far more generally useful than tracheotomy. Fortunately the introduction of antitoxin makes the need of operative interference much less common than a few years ago. Yet there are now occasional cases of dyspnoea resulting from the obstruction of diphtheritic laryngitis where the attending physician must do something at once or the little patient will die.

Our author's experience that more than twice as many patients can be saved with Intubation as with Tracheotomy, together with the facts that the former operation causes less shock, is more quickly performed, needs less preparation and fewer assistants, has led him to give it the preference. He merely insists, however, that the patient must have continuous skilled attention while the tube remains in place.

This would seriously limit the usefulness of the procedure in private practice, were it not for the help of antitoxin. For we believe we may take it for granted that in hospitals everywhere, on this side of the water at least, Intubation is preferred.

But if we accept the *dictum* that skilled attendance must be at hand in every case, the element of time becomes at once of great importance. Hence we note with interest that nearly 60 per cent of Dr. Bokai's recoveries were extubated within 48 hours, since he has been able to supplement the operation by antitoxin.

Of course in the cities, except in the case of the most wealthy who can afford to pay for all needed skilled attention, such "chokers" are far more safe in the hospitals. But cases of this sort *do* occur in the country and at a distance from the physician.

It is then that the country physicians, who constitute a large

part of our readers, must use that faculty almost always so well developed in them, common sense. Presupposing that he has the needed instruments and experience, he must consider many elements. Is the case so urgent that he dare not rely simply on antitoxin? Can he arrange to be within short calling distance for 48 hours? Is there at hand a reliable nurse who will do as directed and not as the child desires? Shall he have the silk attached to the tube? Fortunately in these days the question of operation for euthanasia is rarely raised. Yet even that may occur.

If he decides that under the circumstances Tracheotomy is the only operation permissible, there still remains the question as to whether he shall do a preliminary Intubation. There can be no doubt that it is easier to open the trachea of an intubated child than that of a child who is choking and laboring for breath, terrified and struggling, the trachea pulled now this way and now that. But the preliminary operation takes time and skill.

The two great objections to Intubation that it may cause greater obstruction by loosening membrane and pushing it down, and that serious decubitus may follow, are well disposed of as exceedingly rare. They must not be forgotten as possibilities and must be guarded against as indicated so far as possible.

Intubation for non-diphtheritic stenoses will not occur in the practice of most of us. Yet, if it ever does present itself as a solution to the problem before us, we may profitably remember that it has been successful in many cases and is relatively safe and simple.

The concluding article as to the value of antitoxin is but one more strong testimony to the great efficiency of that remedy in combatting what a few years ago was the most dreadful and most dreaded disease of childhood.

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TWIN PREGNANCY AND ECLAMPSIA.—The majority of reputed text-books simply state that twin pregnancy predisposes the mother to eclampsia on account of the exaggerated distension of the uterus, and in order to positively demonstrate that twin pregnancy is an etiological factor of puerperal convulsions, recourse must be had to a critical study of existing clinical documents pertaining to this question.

In order that we may have a point of comparison we will first of all consider in a first series of statistics the two following questions, viz.: What is the proportion of twin pregnancies to simple

pregnancies? and secondly, What is the frequency of eclampsia in relation to pregnancies in general?

As regards the proportion of twin pregnancy to simple pregnancy, Pinard gives 1 out of every 66.4 gestations as a mean figure, but this is evidently much too high. Charpentier gives a means of 1 in every 87 pregnancies, basing these figures on a collection of statistics coming from various countries; with Dubois, Depaul and Cazeaux he admits that for France, at least, the proportion is smaller, namely, 1 twin pregnancy to 97 simple pregnancies.

Now, what is the frequency of eclampsia in pregnancy generally considered? It is true that statistics given by various writers vary very widely. English obstetricians give a proportion of 79 cases out of 38,306 labors, in other words, a case of eclampsia in every 485 confinements. French obstetricians show a much greater frequency; Madame Lachapelle's statistics show 61 cases out of 38,000 labors, or one in every 200. Pinard's statistics taken at the Lariboisière give exactly the same proportion, namely, 33 cases out of 19,135 labors, or 1 case of eclampsia in every 200 confinements.

Lohlein collected the statistics from various clinics in Germany, Switzerland and Austria, and found 325 cases of eclampsia out of 32,325 labors, that is to say, one case out of 161 labors. The statistics of Lachapelle, Pinard and Lohlein are based on hospital records, the women being brought to the institutions on account of the eclampsia and consequently their proportions are much higher than is the actual case; and we think that a smaller proportion is nearer correct, namely, one case of eclampsia in every 350 normal labors, as has been pointed out by Charpentier and Ribemont Dessaignes.

In the next series of statistics we will endeavor to show what is the proportion of twin pregnancies in a given number of cases of eclampsia, and secondly, what the proportion of twin pregnancies complicated with eclampsia is, which occur in a given number of twin pregnancies.

	Eclampsia.	Twin pregnancies.
Goldberg.....	81 cases	4 cases
Paupertot.....	288 cases	24 cases
Olshausen.....	200 cases	16 cases
Mauriceau, Lachapelle.....	86 cases	6 cases
Tarnier.....	88 cases	5 cases
Azais.....	41 cases	2 cases
Pinard.....	14 cases	1 case
	<hr/> 798 cases	<hr/> 58 cases

We have here 798 cases of eclampsia, 58 of the patients having a twin pregnancy, or a means of one twin pregnancy in every fourteen labors complicated by eclampsia. This is a proportion which greatly extends beyond the means of pregnancies of this kind, since we pointed out that there is only one twin pregnancy in every 97 normal pregnancies.

Now let us record the statistics demonstrating the frequency of eclampsia by comparing twin pregnancies complicated with eclampsia with a certain number of twin pregnancies not presenting this complication.

	Twin pregnancies.	Cases of eclampsia.
Merriam.....	48	2
Chailly....	13	2
Braun.....	94	1
Wieger.....	379	29
Laugier.....	41	2
Gautrelet.....	30	3
	<hr/> 605	<hr/> 39

Consequently, out of 605 twin pregnancies we note 39 cases of eclampsia, in other words a means of one twin pregnancy complicated with eclampsia out of 15.5 cases of twin pregnancy. This statistic is more important than the preceding one and clearly shows what we wish to demonstrate, namely, the very great frequency of eclampsia in twin pregnancy. In point of fact, while only one case of eclampsia is met with in every 350 simple pregnancies, this complication occurs once out of every fifteen cases of twin pregnancy.

These statistics may be briefly summed up as follows: one case of eclampsia in every 350 simple pregnancies; one case of eclampsia in every 15 cases of twin pregnancies. These figures are eloquent in themselves and establish in a very irrefutable manner the importance of twin pregnancy as an etiological factor of this terrible complication of labor.

## EDITORIAL COMMENT.

## The Vitality of Epithelial Cells, and the Etiology of Cancer.

WHAT the nature of the irritant may be that causes the localized overgrowth of epithelial cells which we call cancer, we are yet no nearer knowing than we were before the demonstration of its exact pathology, more than half a century ago. Notwithstanding all the claims that have been made of the casual influence of external biologic factors, parasites from bacteria, and fungi, schizomycetes, and blastomycetes to various forms of animal parasites, gregarines and protozoa generally, we are no nearer the solution of the problem than we were before.

Of late the subject has been approached from the other side, the essential vitality of epithelial cells and their reaction to various irritants, and some most interesting results have been obtained by various observers. In Dr. Hektoen's review of this subject for the first number of "Progressive Medicine," we find some striking observations on the subject collated. Ljunggren, for instance, found to his surprise that he could preserve carefully sterilized bits of human skin in sterile human ascitic fluid for months, and that the cells of the tissues retained their vitality. Three months after their removal from the body the cells of the deeper layers showed well-stained nuclei, and good protoplasmic structure. Successful transplantation was made with pieces kept in such sterile fluid for a month. Small pieces of the transplanted skin were removed at varying intervals, and it was found that a marked proliferation of epithelial cells showing many nuclear figures had occurred. Special precautions were taken, which absolutely assured the absence of cells that might have grown in from the surrounding cutaneous margin and so vitiated the conclusions. The transplanted cells not only grew over the raw surface, but penetrated, also, into the granulation tissue beneath, after the manner of a beginning carcinomatous growth.

Almost more interesting and suggestive than this are the observations made by Loeb on epithelial regeneration. "From the margin of a tissue-defect huge epithelial protoplasmic or plasmodial masses move in a sliding manner over the naked surface, inclosing and dissolving the crust and other obstacles. Re-

generating epithelium readily removes such substances as cartilage when placed in its way. Below the protoplasmic layer epithelial cells wander in from the margins of the defect, and often grow down into the connective tissue, apparently checking the growth of the latter. The process is closely allied to changes in carcinoma. At the same time active changes, such as mitoses, occur in the epithelial cells removed some distance from the margins of the wound. . . . Loeb believes that the wandering of the cells, as outlined, is in response to stereotropism, and forms a determining in inducing mitosis in the remaining cells." The pregnant significance of these observations, especially the apparent action at a distance of epithelial elements in arousing epithelial cells into reproductive and germinal activity, can scarcely be overestimated. This is the essence of carcinoma, though in healthy subjects the vital resistance may be sufficient to restrain the morbid overgrowth that would otherwise result.

According to Loeb, "if a small bit of epithelium is placed in the centre of the crust covering a defect in the skin, it begins to send out processes in all directions into the crust, the cells acting as separate organisms, independent of blood supply or nervous influence." We are evidently closely in touch, in these manifestations, with the as yet inexplicable vital forces that we see at work in all their untrammelled energy and power in cancer. Further observations are needed to give the deductions from these observations practical application. They constitute, however, the most hopeful aspect of the present pathological work on cancer, as far as regards the near prospect of discovering its etiology. Their value, as additions to biological science, especially to that mysterious problem, the struggle for life among the various cells of the body tissues, can scarcely be overestimated.



## REVIEW OF GYNECOLOGY.

**PUERPERAL TETANUS.** By W. KUHNAU (Breslau). *Berlin klin. Wochenschrift*, No. 29.

The presence of the B. tetani in the puerperal endometrium has as yet been demonstrated in three cases only. The following case is therefore of great interest. A patient of the author's, aged 42, after a vaginal injection six days after normal labor, was seized by tetanus, opisthotonos, spasms of the muscles of the extremities, and of those of the larynx and pharynx, repeated spastic contraction of the glottis, during one of which she expired. In the network of the endometric issue B. tetani was found with a large variety of others, and the tetanic poison was detected in the blood and spleen. The infection was a mixed one of the bacteria of putrid decomposition, septic germs and B. tetani.

**TETANUS AFTER ABDOMINAL OPERATION.** By KOCH. *Deutsche Zeits. f. Chir.*, June, 1898.

A patient, aged 42, was attacked by tetanus six days after myotomy and died two days later. In a small abscess in the stump was found a knot of catgut in process of absorption. Fragments of this catgut induced tetanus in two mice. The author looks upon the catgut as a source of infection, though it had been sterilized by boiling and kept in oil of juniper.

**CONSTIPATIO MUSCULARIS S. TRAUMATICA MULIERUM CHRONICA**  
By PINCUS (Dänzig). *Virchow's Archiv*, Bd. cliiii., Heft. 2.

In half the cases of chronic constipation in women, Pincus believes that the cause may be found in a weakening of the levator ani (diaphragma pelvis) due to laceration and cicatrization, or to ischæmic over-tension and relaxation from long detention of the foetal head in the small pelvis. Under such conditions, when the levator ani contracts, narrowing of the vagina does not take place and, upon straining, the perinæum protrudes forwards; one may often detect with the finger in the vagina broad gaps in the muscular diaphragm. By reason of its distension the levator ani may act vicariously for the sphincter (continentia alvi with genital cloaca). Imperfect function of the abdominal pressure aids in bringing about a chronic constipation. Deficient innervation of the intestine, etc., are secondary complications.

**SARCOMA UTERI.** By O. v. FRANQUE (Würzburg). *Münchener med. Wochenschr.*, No. 41.

In the last ten years 3,366 cases seen at the Würzburg gynecological clinic included 304 uterine carcinomata (35 affecting the

corpus), and only 16 sarcomata: sarcoma seems thus to be twenty times as uncommon as carcinoma, and twice as rare as carcinoma of the corpus uteri.

Only two of the sarcomata—one of the corpus and one of the cervix—certainly originated from the mucous membrane: in a polypoid tumor of the fundus the origin was doubtful. All of the 13 parietal sarcomata developed like myomata, five were distinctly submucous (two polypi) or interstitial submucous, while there was only one interstitial subserous, one interstitial intraligamentary and one entirely subserous.

Two tumors were primary, five certainly, and six more or less probably, to be referred to preëxisting fibromyomata; the derivation of the sarcomatous elements from the muscular fibres could not be demonstrated in any case, but was probable in two, and in these and three others their derivation from the interstitial tissue was indubitable. In six cases the diagnosis before operation had been fibromyoma. One woman was 40, another 34, and another only 27, but the average of the remaining 13 was 51.6 years; six were nullipara; ten had from two to eleven children (average 6.5).

PULMONARY METASTASES IN DECIDUOMA MALIGNA. By DR. JULIUS NEUMANN. *Münchener med. Wochenschrift*, 1898, No. 49, 158.

In the Vienna Medical Club, Dr. Julius Neumann lately gave an interesting address and demonstration on the above subject. A woman after bearing a living child was subject to persistent hemorrhage, on account of which the uterus was repeatedly curetted. From examination of the *débris* removed Neumann made a diagnosis of malignant new growth. The uterus was extirpated four months after delivery, but the woman died two and a half months later from metastases. There were numerous round knots, up to the size of an apple, in the lungs, partly superficial, partly in the deeper parenchyma, in color ranging from grayish to brownish red; some of the masses were necrotic in the centre, others breaking down in suppuration. After discussing the symptomatology and diagnosis of the disease (on the basis of his own experience and the statements of Eiermann, Schmorl and others), and the success of early extirpation of the uterus, Neumann pointed out that hæmoptysis occasionally occurs during pregnancy, though neither tuberculosis, heart disease or other cause for it can be detected. He had met with such hemorrhage in two cases in the early months of hydatid mole, but otherwise normal, pregnancy, the patients feeling perfectly well. After a few weeks the hæmoptysis ceased and the women remained quite healthy. It is not impossible that in such cases there may have been embolic infarcts due to the escape of placental giant cells such as Schmorl has described.

*The British Medical Journal* (Epitome, January 14, 1899) gives an abstract of a case in Treub's Clinic, in which acute tuberculosis was simulated by deciduoma malignum. The case was quoted by Driessen in a discussion on a paper of Veit's "On Mola Hydatidosa and Deciduoma Malignum" (*vide Centralblatt f. Gyn.*, 1898, S. 1,006 and 506).

A NEW METHOD OF TREATING INFLAMMATORY AND ESPECIALLY EXUDATIVE PELVIC AFFECTIONS BY MECHANICAL PRESSURE.

By L. PINCUS (Däntzig). *Zeitschrift f. Geb. u. Gyn.*, xxxix., 1.

The method warmly recommended by Pincus in this article consists in recumbency on an inclined plane, combined with compression of the pelvic organs from the exterior and also from the vagina. For inflammatory affections of the adnexa in the first place Pincus desires non-operative treatment. The conditions necessary for unburdening the pelvic organs are completely fulfilled by Positio in plano inclinatio cum compressione (Belastungslagerung). The inclined plane is arranged by raising the foot end of the bed 15—35 cm.; the external compression by elastic bandages, adhesive plaster, a bag filled with shot or moist potters' clay from 1 to 5 kg. weight. The internal compression Pincus obtains with Gariel's air pessary, a colpeurynter, or preferably by Bozemann's columnization or graded tamponnade; gynecological massage is also recommended as an auxiliary means in chronic disease. He indicates as the peculiar field for this treatment chronic pelvic exudations (pelvic cellulitis [parametritis], pelio-peritonitis and tubal affections), but it has in his experience been of great service in many acute inflammations. In irritable conditions of the peritoneum it is contra-indicated.

HYPEREMESIS GRAVIDARUM. By GUSTAV KLEIN (Munich). *Zeitschrift f. Geb. u. Gyn.*, xxxix., 1.

Klein agrees with Kaltenbach in restricting this term to cases in which the vomiting is directly due to pregnancy and the patient's nourishment suffers. He admits as cause not only hysteria (Kaltenbach) but also a general neurosis. The course he divides into three stages: (1) Vomiting only after food; (2) vomiting independent of ingestion; (3) vomit contains blood; fever, syncope, delirium, death. In the first and second stages dietetic treatment suffices, i. e., mental and bodily repose and diminished nourishment; if this does not succeed treatment in an asylum must be suggested and perhaps carried out. Local and suggestive treatment are superfluous. In the third stage the induction of premature labor must be considered. (*Cf. Bacon, A.J.M.S.*, June, 1898.)

ON THE OCCURRENCE AND SIGNIFICANCE OF POST-NATAL TRANSFUSION. By RUDOLF KOSTLING (Däntzig). *Zeitschrift f. Geb. u. Gyn.*, xxxix., 1.

By post-natal transfusion the author understands, as did Schücking, the passage of blood from the placenta to the foetus after birth. The proceeding is of particular importance in deciding when the cord should be divided. In the present work Köstling has collected the literature of the subject, and also reports his own researches, which were directed to the weight of the child from the moment it was born till the severing of the cord, and to determining the amount of blood which flowed away when the cord was separated immediately. This amount in I.-paræ Köstling found to be from 0 to 130 g., measured by the increase in the weight of the child during the third stage of labor, and in multiparæ from 0 to 80 g. If the cord were divided immediately the child was born, in primiparæ he collected from it from 10 to 152 g.; in multiparæ from 5 to 115 g. As cause of post-natal transfusion he takes the contractions of the uterus during labor, which press the blood out of the maternal into the foetal placenta and so lead to the transfusion. The statement made by some authors, that children whose cords are prematurely divided are inferior in appearance and general condition, he could only partially confirm—indeed in some cases the balance was in their favor. He considers that pulsation should have ceased in the cord before it is divided, and characterises the use of Credé's grip, the elevation of the placenta, the stroking down of the cord, and such like proceedings as superfluous.

## BOOK REVIEWS.

**ACROMEGALY.**—An essay to which was awarded the Boylston Prize of Harvard University for the year 1898. By GUY HINSDALE, A.M., M.D. Reprinted from *Medicine*, 1898. William M. Warren, Publisher, Detroit, Mich.

This is a very complete scientific monograph on a new subject. Not that the condition has not been recognized for many years, but it has only lately attracted much attention. The author has made a careful study both of cases and of medical literature and presents in this essay, amply illustrated by excellent photographs, the results of his investigation. The fact that it was awarded the Boylston Prize at once stamps its scientific and medical value.

**NERVOUS AND MENTAL DISEASES.** By ARCHIBALD CHURCH, M.D. and FREDERICK PETERSON, M.D. With 305 illustrations. Published by W. B. Saunders, 925 Walnut Street, Philadelphia. 1899. Price, \$5.00 net in cloth, and \$6.00 net in half morocco.

The publishers thus present in most attractive and convenient form two monographs, entirely distinct but in the minds of most of us closely allied. The two authors have worked independently. Dr. Church is well known from his connection with various medical schools and hospitals in Chicago, while Dr. Peterson is one of the prominent alienists of New York City and is known to our readers as a contributor to the *ANNALS* in Vol. XI. The work of each of these men is very careful, scientific and exhaustive. An abundance of illustrations and diagrams make plain to the general practitioner much of branches which often demand the utmost efforts of the specialist. Part I is introductory and outlines the best methods for the thorough examination of patients suffering from nervous diseases. Part II takes up the diseases of the cerebral meninges and cranial nerves. Part III discusses the diseases of the brain proper. Parts IV and V treat respectively of the spinal meninges and nerves and of the cord itself. In parts VI, VII and VIII we find all the diseases of the general nervous system, with and without known anatomical basis, considered, and even those which are believed to be purely symptomatic like neuralgia and the disorders of sleep.

As before stated the last portion of the book is confined to the consideration of mental diseases. Professor Peterson presents

this somewhat dry subject most interestingly. Illustrations, diagrams and clinical accounts materially assist. The book is beautifully printed on fine paper and concludes with an index of over 25 pages which in itself is an indication of the care with which it has been prepared.

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**THE AMERICAN YEAR BOOK OF MEDICINE AND SURGERY.** Edited by GEORGE M. GOULD, M.D. W. B. Saunders, Publisher. Philadelphia, 1899. Price, cloth, \$6.50.

The fourth yearly issue of this valuable work appeared on time a few weeks since, but space has not permitted a notice of it until now. There are no notable changes other than from the death of Dr. William Pepper, the department of General Medicine has been edited by Drs. Stengel and Edsall, who have executed their difficult task with great honor.

The Year Book is of utmost value not only to teachers in medicine, but to all general practitioners desirous of keeping up with recent advances made.

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**PROGRESSIVE MEDICINE.** Edited by HOBART AMOEY HARE, M.D. Vol. I. Philadelphia, 1899. Lea Brothers & Co., Publishers.

We have before us the first volume of this new quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. The present volume contains the following sections: Surgery of the Head, Neck and Chest, by J. Chalmers Da Costa, M.D.; Diseases of Children, by Alex. D. Blackader, M.D.; Pathology, by Ludvig Hektoen, M.D.; Infectious Diseases, including Croupous Pneumonia, by William S. Thayer, M.D.; Laryngology and Rhinology, by A. Logan Turner, M.D., and Otology, by Robert L. Randolph, M.D. The work concludes with an excellent and carefully prepared index.

The matter is very readable and the volume is attractive. We believe that this quarterly will meet with much favor with the profession and can heartily commend it.

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**DISEASES OF THE EYE.** By G. E. DE SCHWEINITZ, A.M., M.D. Third Edition. Philadelphia, 1899. W. B. Saunders, Publisher. Price, cloth, \$4.00 net.

The third edition of this well known text-book has been thoroughly revised and much new matter introduced. Much attention has been given to the bacteriology of the diseases of the eye and special paragraphs on favus of the eyelids, Köch-Weeks' Bacillus conjunctivitis, pneumococcus conjunctivitis, diplobacillus conjunctivitis, pneumococcus infection of the cornea, retinitis striata, and many others have been added.

The illustrations have been increased in number and the book is quite up to date in every respect.

**SEXUAL IMPOTENCE.** By VICTOR G. VECKI, M.D. Philadelphia, 1899. W. B. Saunders, Publisher. Price, \$2.00 net.

In the 283 pages forming this neat little volume the pathology and treatment of sexual impotence is treated very ably by the author, and if read in a proper spirit, the book certainly will be appreciated.

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**RENAL SURGERY.** By HENRY MORRIS, M.A., M. B. (Lond.), F.R.C.S. Philadelphia, 1898. P. Blakiston's Son & Co., Publishers. Price, \$2.00.

This book contains the Hunterian Lectures for 1898, delivered by Mr. Morris, to which a fourth on injuries of the ureter has been added. About half of the book is given to tables of 267 cases of renal operations performed by the author up to the first week in March, 1898, as well as a table of 49 collected cases of operation for calculous anuria.

The teaching, as might be supposed, is sound, and the book will be read with interest and profit, especially to the general practitioner.

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**SAJOUS'S ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE.** Vol. II. Philadelphia, 1899. The F. A. Davis Co., Publishers.

The second volume of this well arranged and practical work contains articles from Bromide of Ethyl to Diphtheria. To be particularly noted in the present volume are the articles on Cerebral Hemorrhage by William Browning, M.D.; Cirrhosis of the Liver, by Professor Adami; Cholera, by Professor Rubino; Diabetes, by Professor Lépine, and Cholelithiasis, by Professor Graham.

There are many others from the pens of eminent writers, but space will not permit us to cite them all.

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**THE PRACTICE OF OBSTETRICS BY AMERICAN AUTHORS.** Edited by CHARLES JEWETT, M.D. Philadelphia, 1899. Lea Brothers & Co., Publishers.

This is a very complete and up-to-date treatise on the science and art of obstetrics. It is divided into eight parts as follows: Part I, Anatomy; Part II, Physiology of Pregnancy; Part III, Physiology of Labor; Part IV, Physiology of the Puerperium; Part V, Pathology of Pregnancy; Part VI, Pathology of Labor; Part VII, Pathology of the Puerperium, and Part VIII, Obstetric Surgery.

Among the contributors we would mention Edward P. Davis, M.D., Hunter Robb, M.D., J. Clifton Edgar, M.D., J. Whitridge Williams, M.D., Charles Jewett, M.D., whose names are quite enough to show the character of the work.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### THE HOME MODIFICATION OF MILK.

JOHN LOVETT MORSE, A.M., M.D.,

Assistant Visiting Physician at the City Hospital and Physician to Out-Patients at the Infants' Hospital, Boston. Assistant in Clinical Medicine, Harvard Medical School.

THE following propositions regarding the nourishment of infants are, I think, justified. The best food for an infant is human breast-milk. Any substitute for breast-milk must be like it. That substitute is best which is most like it. This substitute must be easy to obtain and easy to prepare. It must not contain substances not normally found in human breast-milk. It must be free from bacteria, be alkaline and contain the normal constituents of breast-milk in their normal proportions. It must be susceptible of modification to fit individual cases.

No proprietary or patent food exactly fulfills the above conditions. Cows' milk, however, can be modified to do so. Some modification of cows' milk, therefore, is the only proper and practicable substitute for human breast-milk.\*

The following comparative table of human milk and cows' milk shows along what lines cows' milk must be modified in order to resemble human milk.

	Fat.	Sugar.	Proteids.	Reaction.	Sterility.
Human milk...	4.00	7.00	1.50	Alkaline.	Sterile.
Cows' milk...	4.00	4.50	3.85	Acid.	Not sterile.†

The acidity is easily corrected by the addition of an alkali, pre-

\*The Walker-Gordon Laboratory has a patent on the process of modifying milk and hence their product may, in one sense, be called a patent food. They make and sell it, however, only on physicians' prescriptions.

†When obtained by child.



ferably lime-water. The entrance of bacteria can to a large extent be prevented by care in obtaining the milk and their toxic action inhibited by sterilization or Pasteurization. The deficiency in sugar is easily made up by the addition of a sufficient amount of milk-sugar. The difficulty comes in the fat and proteids, for, while the percentage of fat is the same in both cases, that of the proteids is much higher in cows' milk. Any dilution of the milk to lower the percentage of proteids must, therefore, affect that of the fat also and render it too low. Proper modification by simple dilution is, therefore, impossible. In some way the percentage of proteids must be diminished while that of the fat is retained unchanged. This is rendered possible by the fact that when milk is separated, either by gravity or by centrifugalization, the sugar and proteids remain nearly equally distributed throughout the mixture while the fat is very unequally divided, being almost entirely contained in a certain small portion. It is upon this principle that the whole process of modification, both in the laboratory and at home, is based.

It has been found that when average cows' milk has been set for four hours the composition of the upper one-third is as follows:

Fat.	Sugar.	Proteids.
8.00	4.50	3.85

When it has been set for six hours the composition is as follows

	Fat.	Sugar.	Proteids.
Upper 1-5.....	12.00.	4.40	3.75
Upper $\frac{1}{4}$ .....	10.00	4.50	3.85
Lower $\frac{3}{4}$ .....	2.00	4.50	3.85
Lower $\frac{1}{4}$ .....	0.25	4.50	3.85

The cream of milk set for twelve hours or more has the following composition:

Fat.	Sugar.	Proteids.
16.00	4.20	3.60

It is evident, however, that these figures are not constant but must vary with the composition of the specimen of milk set. No modification of milk based on them, therefore, can be absolutely accurate. As absolute accuracy is impossible it is advisable, as a rule, in order to avoid small fractions of a per cent and complicated calculations, to always call the percentage of sugar 4.50 and that of the proteids 4.00. The errors introduced in this way are comparatively unimportant. The percentages of sugar and pro

teids obtained are, of course, lower than calculated. Small variations in the amount of sugar never cause trouble, however, and when proteids make trouble it is always because they are too high. The corrected figures are, therefore, as follows:

	Fat.	Sugar.	Proteids.
Whole Milk.....	4.00	4.50	4.00
Set 4° —Upper 1-3.....	8.00	"	"
Set 6° —Upper 1-5.....	12.00	"	"
Upper $\frac{1}{4}$ .....	10.00	"	"
Lower $\frac{3}{4}$ .....	2.00	"	"
Lower $\frac{1}{4}$ .....	0.25	"	"
Set 12°+—Cream .....	16.00	"	"

In order to obtain the formulæ necessary for the preparation of modified milk at home it is necessary to think and calculate in percentages of fat, sugar and proteids and not in quantities of cream, milk, sugar and water. The various quantities of the different ingredients of the mixture must not be regarded as the primary factors, but merely as the results of the problem. They represent not the ultimate elements of the food, but only the means by which these elements are obtained. In this way only can even approximately accurate results be attained. In fact, the scientific feeding of infants in general is impossible except on the percentage basis of computation.

In calculating any formula for the home modification of milk it is first necessary to determine the percentages of fat, sugar and proteids, the alkalinity and the total amount for twenty-four hours desired. Suppose a twenty-four ounce mixture with 3 1-3 per cent of fat, 6  $\frac{1}{2}$  per cent of sugar, 1  $\frac{1}{4}$  per cent of proteids and of 10 per cent alkalinity is desired. As a rule I base my calculations on the formulæ just given for the upper one-quarter and lower one-quarter of cows' milk after setting six hours. The method is as follows:

The first step is to get the proper amount of fat. This must evidently be obtained from the upper one-quarter. The amount of upper one-quarter required is calculated by the following comparison,—Amount of upper one-quarter wanted: total twenty-four hour amount=per cent fat wanted: per cent fat in upper one-quarter, that is,

$$x : 24 = 3\frac{1}{3} : 10$$

$$x = 8$$

Therefore eight ounces gives the required percentage of fat.

This evidently simply amounts to a dilution of the upper one-quarter, in this instance in the proportion of one to two.

In obtaining the proper percentage of fat, however, certain percentages of sugar and proteids have been necessarily acquired also. It is next necessary to determine what these percentages are. As the process thus far has been merely one of dilution it is evident that the proportions of sugar and proteids must vary directly as the proportion of fat. Mathematically expressed—Per cent of sugar and proteids obtained: per cent of sugar and proteids in upper one-quarter = per cent of fat obtained: per cent of fat in upper one-quarter; or per cent of sugar and proteids obtained: per cent of sugar and proteids in upper one-quarter = ounces of upper one-quarter used: total amount in ounces. In this instance the dilution is one to two and the percentages of sugar and proteids are obtained by dividing those of the upper one-quarter by three: that is, sugar, 1.50 per cent and proteids 1.33 per cent. Eight ounces of the upper one-quarter in a twenty-four ounce mixture thus gives the following percentages:

Fat.	Sugar.	Proteids.
3.33	1.50	1.33

The percentage of proteids thus obtained is close enough to that desired for all practical purposes.

The percentage of sugar, however, is still 5 per cent less than the desired  $6\frac{1}{2}$  per cent. This is easily calculated, 5 per cent of twenty-four ounces being one and one-fifth ounces. This is about equal to seven level teaspoons. The 10 per cent alkalinity is also easily reckoned, 10 per cent of twenty-four ounces being two and a half ounces. That amount of lime-water is therefore added. The amount of liquid is still too low, however, as eight ounces of upper one-quarter and two and a half ounces of lime-water make only ten and a half ounces. Hence thirteen and a half ounces of water must be added to make up the total quantity of twenty-four ounces.

	Fat.	Sugar.	Proteids.	Alkalinity.	Quantity.
Upper $\frac{1}{4}$ , 8 ounces.....	3.33	1.50	1.33	—	8
Milk-sugar, 1 1-5 ounces...	—	5.00	—	—	—
Lime-water, $2\frac{1}{2}$ ounces....	—	—	—	10	$2\frac{1}{2}$
Water, $13\frac{1}{2}$ ounces.....	—	—	—	—	$13\frac{1}{2}$
	3.33	6.50	1.33	10	24 ounces

It is perfectly evident that the process detailed above merely amounts to a dilution of the upper one-quarter with lime water and water and the addition of milk sugar. It is also evident that,

as the process is simply one of dilution, the relation of the percentage of proteids to that of fat must remain a constant one. This brings out the weak point of the method, namely, that with a low percentage cream it is impossible to get a low proteid with a high fat. For example, it is impossible by using the upper one-quarter, containing 10 per cent of fat, to get less than 1.60 per cent of proteids in combination with 4 per cent of fat, 4 per cent of fat meaning practically a one to a one and a half dilution. By using 16 per cent cream, however, it is possible to get as low as 1 per cent of proteids with 4 per cent of fat, 4 per cent of fat here meaning a one to three dilution. Very low percentages of proteids in combination with high percentages of fat may be obtained at home, as they are in the laboratory, by the use of centrifugalized cream, containing a very high percentage of fat.

It is possible, however, although using creams separated by gravity and containing comparatively low percentages of fat, to obtain high percentages of proteids in combination with a low percentage of fat, the additional proteids being provided by the lower one-quarter. Suppose, for example, that in the previous formula 2 per cent of proteids is desired instead of 1.25 per cent. Eight ounces of the upper one-quarter will, as before, give:

Fat.	Sugar.	Proteids.
3.33	1.50	1.33

A 66 per cent of proteids are still necessary and must be obtained from the lower one-quarter, which is practically free from fat. The amount of lower one-quarter required is calculated on the same principle as that for the upper one-quarter; that is, amount of lower one-quarter wanted: total twenty-four hours amount = per cent of proteids wanted: per cent of proteids in lower one-quarter, that is:

$$x : 24 = 0.66 : 4.00$$

$$x = 4$$

Therefore, four ounces of the lower one-quarter gives the extra amount of proteids required. It also, however, gives an additional amount of sugar, which, calculated as before, amounts to 0.75 per cent. These percentages added to those obtained from the upper one-quarter give:

Fat.	Sugar.	Proteids.
3.33	2.25	2.00

4.25 per cent of sugar is still lacking. This, calculated as before, is provided by an ounce of milk-sugar. Two and a half

ounces of lime-water furnish the alkalinity and nine and a half ounces of water make up the desired quantity.

	Fat	Sugar	Proteids	Alkalinity	Quantity
Upper $\frac{1}{4}$ , 8 ounces. . . . .	3.33	1.50	1.33	—	8 ounces
Lower $\frac{1}{4}$ , 4 ounces. . . . .	—	0.75	0.66	—	4 ounces
Milk-sugar, 1 ounce. . . . .	—	4.25	—	—	—
Lime-water, $2\frac{1}{2}$ ounces. . . . .	—	—	—	10	$2\frac{1}{2}$ ounces
Water, $9\frac{1}{2}$ ounces. . . . .	—	—	—	—	$9\frac{1}{2}$ ounces
	3.33	6.50	2.00	10	24 ounces

The additional proteids may be obtained from the lower three quarters. As the lower three-quarters contains about 2 per cent of fat, an additional amount of fat is obtained at the same time. The error thus obtained is not a large one, however, and may, as a rule, be disregarded. It is rarely necessary to get additional proteids, as milks combining low fats and high proteids are seldom required.

The modifying of milk at home practically amounts, therefore, to diluting cream, of varying degree of richness, with lime-water and water, and adding milk-sugar. It is often simpler to calculate quickly by division what strength of cream will more easily give the desired combination of fat and proteids, than to go through the process detailed above. Thus, the easiest way to get the combination of 4 per cent fat and 1 per cent proteids, is by dividing 16 per cent cream by 4, that is, by making a one to three dilution. In the same way, dividing 8 per cent cream by two, gives 4 per cent of fat and 2 per cent of proteids, and dividing 10 per cent cream by two and a half, gives 4 per cent of fat and 1.50 per cent of proteids. The dilution of whole milk gives a combination of low fat and high proteids. For example, a one to one dilution gives 2 per cent of fat and 2 per cent of proteids.

Three criticisms are often made with regard to the home modification of milk: First, that the calculations required are too complicated for the practising physician; second, that the preparation of the food requires more time and intelligence than the average woman possesses; third, that the food thus prepared is too expensive.

As to the first point, I feel sure that no man who has been able to obtain the degree of Doctor of Medicine can have the slightest difficulty in carrying out the simple mathematical calculations detailed above. I also feel sure that no one who really believes as I do, in the absolute necessity of feeding babies, deprived

their natural food, on some modification of cows' milk, will begrudge the small amount of time required to make these calculations. I hope to be able to show that the other criticisms are also unjust.

The apparatus needed for the preparation of modified milk at home is as follows:

*Jars.* One or two glass jars to set the milk in. Mason's fruit-jars are perfectly satisfactory and are found in every family.

*Bottles* to hold the milk. Those made by Whitehall & Tatum for the Arnold Sterilizer are the best available at a moderate price. They retail at five cents apiece, or forty cents a dozen for the large size and thirty-four cents a dozen for the small size. The Walker-Gordon Laboratory sells a somewhat better shaped but more fragile bottle for ten cents apiece, or one dollar a dozen.

*Siphon.* A piece of glass tube suitable for this purpose can be bought for eight cents and bent at home.

*Thermometer.* A thoroughly reliable thermometer can be purchased at the laboratory or at drug stores for fifty cents. Cheaper ones can be obtained for twenty or twenty-five cents, but they are not always trustworthy.

*Graduate* measuring ounces. A satisfactory four ounce graduate can be purchased at any of the wholesale druggists and at many of the department stores for nineteen cents.

*Cotton stoppers.* Ordinary cotton wadding, at thirteen cents a roll, is perfectly satisfactory for this purpose.

This is all the apparatus that is necessary. I always keep several sets on hand, in order to save patients the trouble of getting the various things together. The first cost for apparatus thus amounts to:

Bottles, one dozen.....	0.40
Glass tube for siphon.....	0.08
Thermometer.....	0.50
Graduate.....	0.19
Cotton for stoppers.....	0.13
	<hr/>
	\$1.30

This certainly does not seem exorbitant.

A tin pail or dish does perfectly well for Pasteurization. If a special apparatus is desired, however, it can be obtained from the Walker-Gordon Laboratory for \$4.00, or Freeman's Pasteurizer may be obtained of J. S. Dougherty, 411 W. 59th street, N. Y., for \$3.50.

The materials used in the preparation of the food are milk, milk-sugar and lime-water. The price of milk varies, of course, in different localities, but good milk may usually be obtained at seven cents a quart. Druggists and grocers sell milk-sugar at prices varying from thirty to sixty cents a pound. Wholesale druggists, however, will sell twenty-five pound lots at about twenty cents a pound, the price varying slightly from time to time. The lime-water can be made at home and costs practically nothing. The method is as follows: Slake a piece of quick lime, the size of the fist, in a little water. Add to this a gallon of cold water. Shake and let settle. Pour off the water. Add another gallon of cold water. Shake and let settle. Pour off the upper clear portion. This is lime-water.

I always give the following written directions: Wash thoroughly and scald the glass jars, bottles, graduate and siphon every day before using. As soon as the milk comes put — pints in the jars, cover and set it in a cool place for — hours. At the end of this time siphon off the lower — of the milk into a clean dish. Start the siphon with water. Then mix in a clean dish in the following proportions:

Upper—

Lower—

Lime-water.

Boiled Water (not boiling).

Sugar of Milk.

Then put — ounces of this mixture in each of — bottles and stopper tightly with cotton. Place these bottles upright in a dish of cool water, the water in the dish being at the level of the milk in the bottles. Put the dish on the stove and heat until the thermometer in the water reaches 170 degrees. Then take off the stove and cover with an old blanket or comforter. Leave this on for twenty minutes. Then take out the bottles, set them in a cool place and use as directed.

This process may seem long and complicated, but in practice it is not. It usually takes from three-quarters of an hour to an hour to do the whole thing, including the Pasteurization. This is all the time that is required for twenty-four hours, however, and I have often had mothers tell me that they much prefer to take an hour once a day and get the work done up for the day, to preparing the food at intervals all day. Moreover, the aggregate amount of time consumed is less. It is self-evident, I think, that

the process is not too complicated for every-day use. I certainly have not found it so. I have had no trouble in using it, either in private or hospital practice. All who have tried it say that it is not nearly as difficult as they supposed and that they are very glad to do it.

The cost of the food varies, of course, with the strength and amount of the special mixture. A better idea of this can be obtained, I think, by an analysis of a few sample mixtures than in any other way. A child two weeks old will probably require ten feedings of two ounces each of a milk of 5 per cent alkalinity, containing 2 per cent of fat, 5 per cent of sugar and 0.75 per cent of proteids. To make this mixture requires:

Upper $\frac{1}{4}$ .....	4 ounces
Lime-water.....	1 ounce
Water.....	15 ounces
Sugar of milk.....	6 $\frac{1}{2}$ drachms

A pint of milk will furnish four ounces "of upper quarter." This means seven pints of milk a week, which, at seven cents a quart, amounts to twenty-five cents. Six ounces of milk-sugar will be required per week. This, at forty cents a pound, costs fifteen cents. One cent a week for lime-water and three cents for cotton are liberal estimates. The cost per week, then, of the milk for a baby two weeks old is forty-four cents. This is certainly not excessive. The skim-milk is also available for use in other ways.

The cost increases progressively with the age of the child. An infant of eight months will, as a rule, take eight ounces of a milk of this formula—fat, 4 per cent; sugar, 7 per cent; proteids, 2.50 per cent;—six times a day. The formula for this mixture, of an alkalinity of 5 per cent, is as follows:

Upper $\frac{1}{4}$ .....	19 ounces
Lower $\frac{1}{4}$ .....	11 ounces
Lime-water.....	2 $\frac{1}{2}$ ounces
Water.....	15 $\frac{1}{2}$ ounces
Sugar of milk.....	2 $\frac{1}{2}$ ounces

This requires five pints of milk a day, costing \$1.23 per week. The milk-sugar will cost forty-five cents, and the lime-water and cotton four cents more. This makes a total of \$1.72 a week. This is the most expensive mixture and represents the maximum cost. If the milk-sugar was bought at wholesale and the mixture made in the country, of milk at five cents a quart, the cost would



be only \$1.14 a week. These figures are certainly not excessive, either absolutely or relatively.

It seems to me that these figures must satisfactorily dispose of the objections made to the home modification of milk, on the grounds of expense and of difficulty in preparation.

In conclusion, I can only add, that having employed the home modification of milk in both out-patient and private practice, and among both rich and poor for several years, I have every reason to believe that it is feasible and to be satisfied with the results obtained from its use.

317 Marlboro Street, Boston, Mass.

## THE SERUM-TREATMENT FOR DIPHTHERIA IN THE "STEFANIE" KINDERSPI TAL (402 CASES).

### Third Report.

JOHANN v. BOKAY, M.D.

Director of the Stefanie-Kinderspital, Budapest.

Translated from the German with the special sanction of the author.

BY

EDWARD M. PLUMMER, M.D.

Aural Surgeon to the Carney Hospital; Assistant Aural Surgeon to the Massachusetts Charitable Eye and Ear Infirmary; Aural Surgeon to the Long Island Hospital; Instructor Boston Polyclinic; Fellow of the Massachusetts Medical Society, Etc.

GENTLEMEN: For the third time I tax your esteemed patience in reporting the results obtained, in my hospital, with the serum-therapy in diphtheria cases. While in my first report\* the number of my cases treated with antitoxin amounted to barely 35, and in my address† on February 9, 1895, I could report the fate of only 120 patients, I can now, on the contrary, lay before you a survey of my collective observations in 402 cases.

It is possible that this report may seem unnecessary to some of you, since in the following, as you will hear, I shall, in the main, only confirm my former statements. If, however, we take into consideration that the number of practitioners in our fatherland who doubt the value of the serum-therapy is still sufficiently large and has increased, perhaps, since the Langerhans case—and

\*October 27, 1894.

†Deutsch. med. Wochenschrift, 1895.

if, by the enumeration of my results, I succeed in reducing the number of sceptics by only one, I shall render our domestic sanitary measures a service, I think, and my report will accomplish a work not without value.

My 402 cases were observed during 16 months, from September 10, 1894, to January 1, 1896. I preserved the purity of my observations through the whole period, as I discontinued every local treatment.\*

While in 1894 I employed the Höchst serum exclusively, in 1895 I used, in addition to this, the Aronson serum from the *Berliner Schering'sche Fabrik*, the serum of the *Institut Pasteur de Paris*, and the domestic product of Professor Preisz as well as that of Pertik. The so-called "concentrated" serum,† I had not yet made use of in 1895; in 1896, however, I frequently tested it and obtained the best possible results with the concentrated serum procured from the *Schering'sche Fabrik*. As these experiments were not undertaken until the year 1896, they do not figure in these statistics:

209 cases in all were treated with Höchst serum.‡

79 cases in all were treated with Preisz serum.

44 cases in all were treated with Roux serum.

46 cases in all were treated with Aronson serum.

24 cases in all were treated with Pertik serum.

Total, 402 cases.

Of the fate of my 402 cases, the following table gives a general review:

In this table the results obtained during the period of trial (16 months) are contrasted with those of the preceding three years (from September to September).

		Admitted.	Died.	Recovered.	Perc'tge of Cures.
1891-1892	Number of diphtheria cases	361	185	176	48.75
Sept.-Sept.	Non-operated cases	185	68	117	63.24
	Operated cases	176	117	59	33.52
1892-1893	Number of diphtheria cases	327	174	153	46.78
Sept.-Sept.	Non-operated cases	138	48	90	65.21
	Operated cases	189	126	63	33.33
1893-1894	Number of diphtheria cases	341	196	145	42.52
Sept.-Sept.	Non-operated cases	145	57	88	60.68
	Operated cases	196	139	57	29.08
1894-1896	Number of diphtheria cases	402	109	293	73.00
Sept.-Jan.	Non-operated cases	251	33	218	87.00
(Serum)	Operated cases	151	76	75	50.00

\*See my first and second report.

†Blue label; 2,000 units in 10 c.c.m.

‡From September, 1895, we began to use the Behring 111 serum almost exclusively in the hospital.

Of my 402 patients, therefore, 109 died, that is, the mortality amounted to 27 per cent. If, however, we eliminate from the fatalities those 23 cases in which death took place before the expiration of the first 24 hours of hospital sojourn,—to which deduction no one can take exception,—then the total number of deaths becomes 86, the mortality 22.5 per cent (378:86).

Of the 402 cases, 151 were operative, the total number requiring an operative procedure, therefore, amounted to 37.5 per cent.

Of the 251 patients who required no operative interference 33 died, that is, 13 per cent, or, if we eliminate 8 admitted in a moribund condition,\* 10.33 per cent. Of the 151 patients operated upon, 50 per cent, or 76 died; 44.5 per cent, if we deduct 15 moribund cases. Our cases, classified after the advent of serum, showed the following results achieved with the various preparations:

Kind of Serum.	Admitted.	Died.	Percentage.
Höchst serum	209	64	30
Preisz serum	79	18	22½
Roux serum	44	12	27
Schering serum	46	12	26
Pertik serum	24	3	12
	<hr/> 402	<hr/> 109	<hr/> 27

By dividing the cases into "non-operated" and "operated," the results become evident in the two following tables:

(a) Non-operated Cases:

Kind of Serum.	Admitted.	Died.	Percentage.
Höchst serum	120	17	14
Preisz serum	60	6	10
Roux serum	24	3	12½
Schering serum	34	6	17
Pertik serum	13	1	8
	<hr/> 251	<hr/> 33	<hr/> 13

(b) Operated Cases:

Kind of Serum.	Admitted.	Died.	Percentage.
Höchst serum	89	47	52½
Preisz serum	19	12	63
Roux serum	20	9	45
Schering serum	12	6	50
Pertik serum	11	2	18
	<hr/> 151	<hr/> 76	<hr/> 50

We can hardly draw a comparison between the kinds of serum, based only on the percentages given in the above tables, because experiments of similar extent were not made with each kind, and

\*I include under this designation all those who die during the first 24 hours of hospital stay.

our worst cases were treated until 1896, in the main, with Höchst serum, of which we always had on hand vials with 1,000 and 1,500 units.

In order that you may be in a position, gentlemen, to properly estimate the value of my results, permit me to quote the statistical data of other clinics, also from large material.

Of 300 cases reported by Roux, Martin and Chaillou (Paris), 78 died (26 per cent); among their cases were 179 non-operated, with 22 deaths (12.8 per cent), and 121 operated, with 56 deaths (46 per cent).

Of 300 cases reported by Widerhofer (Vienna), 71 (23.7 per cent) died; among these were 192 non-operated, with 20 deaths (10.4 per cent), and 108 operated with 51 deaths (47.2 per cent).

Of 258 cases reported by Lebreton and Madelaine (Paris), 31 (12 per cent) proved fatal; 183 were non-operative, with 8 deaths; 75 were operative, with 23 deaths (30 per cent).

Of 398 cases reported by Le Gendre, Moizard, Perregaux, Sévestre and Meslay (Paris), 52 (13.1 per cent) proved fatal; of these, 316 were not operated upon; 23 (7.6 per cent) proved fatal; 82 were operated upon; 29 (35 per cent) proved fatal.

Of 525 cases reported by Baginsky (Berlin), 83 (15.6 per cent) died; of these cases, 418 were non-operative, with 47 deaths (11 per cent), and 107 operated, with 36 deaths (37.8 per cent).

Of 500 cases reported by Gerloczy (Budapest), 108 (21 per cent) died; of these cases, 363 were non-operative, with 37 deaths (10 per cent), and 137 operative, with 71 deaths (51.5 per cent).

In the foregoing statistics, therefore, the mortality of the diphtheria patients treated in hospital with serum varied between 12 and 27 per cent. The death rate of the non-operated diphtheria patients varied between 4.4 and 12.8 per cent., while in cases which required an operative intervention, the mortality percentage amounted to 30 and 51.5 per cent.

W. H. Welch, Professor in the Johns Hopkins University in Baltimore, collected out of universal literature 4,294 diphtheria cases treated with serum, and obtained the following average mortality percentage: Of 4,294 cases, 784 died, that is, 18.3 per cent; of 3,127 non-operated cases, 350 died, that is, 11.2 per cent; and of the 1,167 operated cases, 454, or 37.2 per cent died.

If all these data are compared with those literary statements made before the advent of serum and recalled to our remembrance, then must the impartial observer, by the decided dif-

ference in the two periods, immediately be impressed in favor of the serum-therapy. We undertook this comparison in the foregoing tables, where the difference in our mortality percentages is also very conspicuous.

If we analyze these tables a little, we must certainly be convinced that, since the introduction of serum, the number of cases requiring an operation is really smaller than it was formerly. The operative cases in the diphtheria material of the hospital figure in 1892 with 48 per cent, in 1893 with 57 per cent, in 1894 also with 57 per cent, in 1895, on the contrary, with only 37.5 per cent. This might also lead one to the conclusion that these data indisputably prove the mildness of the diphtheria epidemic during the serum-period in comparison to those of the preceding years. If, however, we take into consideration the fact that, during the serum-period, a much larger percentage of stenotic diphtheria patients underwent operation than formerly,\* then the apparent disparity between the operated and non-operated cases before and during the serum-period is properly explained.

In 1892, 15 per cent of the stenotic patients of the hospital were operated upon, in 1893 only 8.6 per cent, in 1894 11.6 per cent, in 1895, on the other hand, 26 per cent. I must confess, however, that I have never been a partisan of the "early" operative procedure, and my literary works also corroborate this statement. The above-mentioned difference, therefore, does not originate in the fact that I had meanwhile changed my mind.

In the Capital and Residence city, Budapest, the spread of the diphtheria epidemic has decidedly decreased during the 16 months of serum-treatment (the numerical diminution of the sick since 1893 is well grounded, as is shown by the following statement). That, however, our hospital material has by no means correspondingly improved in quality, I shall have occasion to demonstrate repeatedly.

The following is the number of diphtheria cases and deaths in Budapest during the last four years:

In 1892 were 2,709 cases with 933 deaths (34 per cent).  
 In 1893 were 2,026 cases with 755 deaths (37 per cent).  
 In 1894† were 1,223 cases with 437 deaths (35½ per cent).  
 In 1895‡ were 1,629 cases with 345 deaths (21½ per cent).

While the mortality in the Capital varied in 1892, 1893 and 1894, between 34 per cent and 37 per cent, in 1895 it fell to 21.5 per cent.

\*All observers lay stress on this.

†From January to September.

‡From September, 1894, to December, 1895.

Of the 1,629 cases, 902 were treated in hospital with serum (500 in Dr. Gerloczy's ward in the St. Ladislaus Hospital, and 402 in mine), with a mortality of 24 per cent. The remaining 727 cases were treated outside of the hospital in a manner unknown to me, with a mortality of 19.5 per cent. The lower mortality percentage of the cases treated outside is positive proof that in both hospitals, for the most part, the severe—not to say the severest—cases gained admission.

Bacteriologic examination was made in all but 9 of my cases; of 393 tested cases, 370 gave a positive result—in only 23 patients was the Loeffler bacillus proved to be absent. In 1894, the examinations were still made outside the hospital in the laboratory of my esteemed friend, Professor Pertik; in 1895, however, they were done by the hospital physician, Dr. Kornel Preisich, in the laboratory of my hospital, which had meanwhile been properly equipped for this purpose. In our bacteriologic examinations, the majority of the cases showed on the blood-serum used as culture-media, not only diphtheria colonies, but also staphylococci often in considerable numbers, and only rarely streptococci; the colonies of the latter were usually present upon those cultures which gave a negative result as to diphtheria. Besides the above-mentioned accompanying cocci, extremely small and large diplococci, bacteria resembling staphylococci were frequently found, with no connection between them and the character of the prevailing disease being established.

That the number of examinations with negative results in our hospital was so small (5.5 per cent), is due to the fact that only cases with distinctly marked clinical manifestations were admitted, and if a doubt as to the character of the disease existed, the bacteriologic examination was completed first and admission followed only in case of a positive result.

With regard to quality, our 402 cases may be summarized as follows:

(a) Pharyngeal diphtheria*.....	164 children
(b) Pharyngeal and nasal diphtheria†.....	30 children
(c) Pharyngeal and conjunct. diphtheria.....	3 children
(d) Pharyngeal and vulvit. diphtheria.....	3 children
(e) Pharyngeal and balanit. diphtheria.....	1 child
(f) Non-operated stenoses.....	50 children
(g) Operated stenoses.....	151 children
	<hr/> 402 children

\*Eventually with hoarseness on moderate nasal discharge.

†In this heading only the pronounced rhinitis fibrinosa cases are inserted.

Even if only the diseases enumerated under the headings (b), (f) and (g) are considered severe, we must then acknowledge 60 per cent of our cases to be grave. But in my opinion the remaining data will clearly show that the number of severe cases in my material far exceeded 60 per cent.

The following is a summary of the cases according to age and the number of deaths devolving upon each year of life:

Admitted.		Died.		
Age.	Cases.		Cases.	
-1	14	} 323, that is, 80 per cent of cases.	6	} 64. that is, 60 per cent of deaths.
1	57		30	
2	80		28	
3	80		20	
4	59		10	
5	33		4	
6	27		4	
7	18		5	
8	11		—	
9	2		—	
10	4		1	
11	9		1	
12	2		—	
13	1		—	
14	4		—	
15	1		—	
<hr/> 402			<hr/> 109	

From this table (admission heading) it is apparent that of 402 cases 71 (17 per cent) were under two years of age; and what is more, 80 per cent of our collective cases devolved upon the first five years—which data furnish fresh proof of sufficient severity on the part of the disease among our sick material.

From the death heading we may gather that 60 per cent of our fatalities, namely 64, devolve upon the two first years.

The following table shows when death took place in our 109 fatalities:

* Within 24 hours, 23	On the 15th day, 2
* Within 48 hours, 12	On the 16th day, 2
On the 3rd day, 3	On the 17th day, 5
On the 4th day, 4	On the 18th day, 4
On the 5th day, 3	On the 19th day, 2
On the 6th day, 3	On the 20th day, 1
On the 7th day, 4	On the 21st day, 1
On the 8th day, 2	On the 22nd day, 1
On the 9th day, 7	On the 23rd day, 1
On the 10th day, 4	On the 24th day, 2
On the 11th day, 3	On the 25th day, 1
On the 12th day, 5	On the 26th day, 1
On the 13th day, 6	On the 27th day, 1
On the 14th day, 1	

\*35, that is, 32 % of the deaths.

In 32 per cent of our fatalities (35 patients) death took place before the lapse of the first 48 hours of hospital stay, which circumstance on the one hand illustrates the quality of our material, on the other, proves that we positively did not select the patients for admission to the hospital. For if we had done this we surely would not have recorded 23 deaths in the first 24 hours.

In dividing our material into operative and non-operative cases, the classification of the patients corresponding in age and the number of deaths occurring in the different life years was as follows:

a. Operated Cases.

Age.	Admitted.		Died.
-1	7	72, that is, 48 per cent of the deaths.	5
1	28		16
2	37		22
3	38		15
4	17		6
5	11		4
6	7		2
7	6		4
8	1		-
9	1		-
10	1		1
11	2		1
	<hr/> 151		<hr/> 76

b. Non-operated Cases.

Age.	Admitted.		Died.
-1	7	78, that is, 31 per cent of the cases.	1
1	29		14
2	43		6
3	47		5
4	42		4
5	22		-
6	20		2
7	12		1
8	10		-
9	1		-
10	3		-
11	7		-
12	2		-
13	1		-
14	4		-
15	1		-
	<hr/> 251		<hr/> 33

From the above tables it is apparent that among our "operated" patients the number of children under two years of age amounted to 72, that is, 48 per cent of the entire "operative" cases. The



number of children of the same age among the "not operated" was 79, that is, 31 per cent of all "not operative" cases.

The immediate causes of death in our 109 cases were:

Sepsis .....	in 12 cases
Descending croup .....	in 28 cases
Oesophag. et gastrit. diph. ....	in 1 case
Catarrhal pneumonia .....	in 41 cases
Croupous pneumonia .....	in 3 cases
Gangræna pulmonis .....	in 1 case
Cheesy pneumonia .....	in 3 cases
Tuberc. miliaris .....	in 2 cases
Heart paralysis .....	in 9 cases
Nephritis .....	in 2 cases
Scarlet fever infection .....	in 3 cases
Mening. cerebro-spin. epid. ....	in 1 case
Leptomening. ex otitide pur. ....	in 1 case
Hepatitis interstit. ....	in 1 case
Enteritis follicularis .....	in 1 case

Of the 76 "operated" dead, we therefore lost 28 from descending croup and 41 from catarrhal pneumonia; we should mention that the descent followed within the first 24 hours of hospital stay\* in 24 cases. The comparatively frequent appearance of catarrhal pneumonia, as the cause of death in our operated material, seems to prove that Kutscher's† assumption that catarrhal pneumonia complications may arise from direct invasion of the alveoli by the diphtheria bacilli ought not in general to be correct. For if this were the case, catarrhal pneumonia could hardly appear so often as the cause of death, as the serum would operate on this, also.

As we may see from the table, among our 109 deaths miliary tuberculosis was the immediate cause of death twice. We consider it necessary to call special attention to this circumstance because as we know, in the discussion following Hansemann's well-known report to the Berliner Aerzteverein, Benda was inclined to take for granted a causal connection between the serum-treatment of diphtheria and the appearance of miliary tuberculosis. We will impute the onset of miliary tuberculosis in our two cases to accident, and will refer to Baginsky's excellent work on the serum-therapy,‡ in which he proves by virtue of his material§ the untenableness of Benda's assumption.

\*Our patients showed, by no means rarely on admission, the manifest symptoms of bronchitis crouposa.

†Escherich, *Diphtheria, Croup, Serumtherapie*. Wien, 1895. S. 133.

‡Die Serumtherapie der Diphtherie. Berlin, 1895.

§S. 144.

Regarding the technique of the injection, I have nothing further to remark than that in 1895 I replaced the bulb syringes by those with metal handles procured from the firm of Jetter and Scherer (in Tuttlingen).

The cleanliness of the latter is more easily and thoroughly carried out.

We observed the formation of abscesses at the site of the injection, in 13 cases approximately in 1,000 inoculations (1.3 per cent).

Abscesses were formed:

With Höchst serum, in 8 cases.....	out of 209 cases
With Preisz serum, in 2 cases.....	out of 79 cases
With Roux serum, in 1 case.....	out of 44 cases
With Schering serum, in — — — .....	out of 46 cases
With Pertik serum, in 2 cases.....	out of 24 cases

Permit me now, gentlemen, to sum up my observations which relate to the effect of the serum on the diphtheritic process itself, and to begin to speak of the questions still disputed by many:

(a) In what manner does the serum-therapy influence the albuminuria of diphtheria patients; (b) does it have any power over the paralyses occurring as sequelæ, and (c) does it increase or diminish the number of heart paralyses arising in the course of diphtheria?

Regarding the effect of the serum treatment upon the local process itself, I can only repeat the observations bearing on this which were advanced in my second report. To illustrate the local effect, permit me to lay before you some sketches, in which I have endeavored to make clear the changes of the throat pictures of my patients during the serum-treatment; I think that the scheduled pictures undoubtedly demonstrate the effect of the serum on the pseudomembranous exudate in the pharynx.

I also emphasize, today, the fact that I have not seen a decidedly quick and bulky exfoliation of the fibrinous exudate in the throat, although I frequently found large and extensive membranes; according to my experience the exudate first demarcates on the organs of the throat, soon thins and changes its dirty gray color to white, while the thinning continually increases until it becomes veil-like and disappears entirely.

In respect to nasal diphtheria, I can also only strengthen my former assertions (I met with grave cases of rhinitis diphtherica in 30 patients); while I have hardly seen an extensive separation of

the pseudo-membrane from the throat, I have observed quite frequently in rhinitis fibrinosa the loosening of large pieces of the deposit, so that I possess, in the hospital collection, many an imposing preparation of nasal pseudo-membrane from the serum period. In such cases, where the membranes entirely block the nasal passages, I consider energetic nasal irrigations (as Professor Jacobi in New York recommended years ago) for the quick removal of the pseudo-membrane necessary, and make use of them also.

The following circumstances bear witness to the favorable effect of the serum-treatment on laryngeal diphtheria: (a) A larger percentage of the stenoses undergo operation than formerly, (b) the percentage of cures of the operated cases has noticeably increased, and (c) the duration of intubation (that is, the time the tube remains *in situ*), is shortened.

We heard just now that formerly only 8.6—15.2 per cent of the stenoses required no operative procedure; today, by the use of serum, this percentage has risen to 26 per cent. While now the percentage of cures in operated cases amounts to 50 per cent, we could, before, produce barely 33 per cent at the best, and in those days thought even this result perfectly satisfactory. In my Lübeck report of the past year, I spoke in detail of the shortening of the intubation period, therefore, I will only briefly mention, in this connection, that the average duration of intubation in my hospital before the advent of serum amounted to 79 hours; since the use of serum, on the contrary, to only 61 hours, so that the serum-therapy has shortened the average period of the retention of the tube about 18 hours. The following table shows the changed conditions and clearly demonstrates that the number of patients permanently extubated within the first 48 hours has materially increased:

Duration of intubation.	Percentage of cured cases before the serum period.	Percentage of cured cases during the serum period.
¼-24 hours	12.55	18.18
24-48 hours	26.04	40.90
48-72 hours	24.18	18.18
72-96 hours	13.50	9.09
96-120 hours	6.06	4.54
120-144 hours		2.27
144-168 hours		6.84
168-192 hours	17.67	—
192-216 hours		—
216-240 hours		—
Over 240 hours		—

The decided increase of the intubation cure percentage in connection with the administration of serum undoubtedly proves that the serum injection arrests the advance of the pseudo-membranous exudation into the lower air passages and prevents reproduction of the exudate on the surface of the affected membrane. While formerly we could hardly rejoice over the expectoration of masses of pseudo-membrane because they were quickly reproduced, so that the patient became a victim of tracheo-bronchitis fibrinosa, today, on the contrary, we rarely encounter such unwelcome experiences because we rarely observe the reproduction of the pseudo-membranes.

The following case will perhaps be suitable to attest the above assertions, although it terminated fatally:

Ladislaus Kr., 7 years old. Admitted November 22, 1895. Sore throat for four days, difficult breathing for one day. Copious excretion from the nose, thick pseudo-membranes on the septum. Insular exudate on the tonsils, on the uvula and on the posterior wall of the pharynx, as far as the latter is visible, extensive thick deposits. Severe stenosis; cyanotic lips; intubation urgent on admission. The breathing did not become free,—extubation,—after which was expectorated a thick, cylindrical pseudo-membrane 12-14 c.m. in length, extending beyond the bifurcation. After renewed intubation the breathing becomes free. Behring 111, November 23. Bites through the thread, extubation; after some hours reintubation; several small pieces of pseudo-membrane expectorated. Behring 111, November 25, throat organs cleaner, breathing free. November 27, mucous membrane of the throat clean. December 3, high fever in the evening. Pulse bad. Suffocation over the right middle lobe, bronchial breathing over the right upper lobe. December 7, intercostal spaces on the right painful. December 8, accelerated, superficial breathing, thread-like pulse, cyanosis. December 9, fatal issue at 9 o'clock. Duration of intubation 63 hours. In the urine abundant albumen continuously. Bacteriologic result positive.

Condition on section. Bronch. pur. diffusa. Pleuritis fibrin. *Purul.* cum compressione fere totius dextri. Pneum. cat. pulm. *sin.* excepta parte anter. super. Degener. parenchym. hepatis *et* renum majoris gradus. hypertrophia excentrica levier et degener. *adip.* musculorum ventriculi sin. cordis.

That by means of the serum-therapy laryngitis fibrinosa may assume a favorable course even when enormous pseudo-mem-

branes are reproduced, the following case, undoubtedly the finest in my whole diphtheria material, serves to illustrate.

Joseph G., 7 years old. Admitted July 2, 1896. Sore throat and difficult breathing for two days. Well developed, moderately nourished. Mucous membrane of the throat injected, on the tonsils several isolated gray-white spots of the size of a lentil. Nose free. Voice very hoarse, cough rough, barking. Breathing strongly stenotic, lips cyanotic. Immediate intubation on admission; the breathing did not become free, but was soon still more embarrassed; on this account extubation and renewed intubation. After considerable coughing, the breathing gradually improved. No fever. General health bad. Two vials of Preisz' serum. July 3, extubation at 4 P. M. on account of floating pseudo-membranes, upon which was expectorated a cylindrical croup membrane extending beyond the bifurcation and showing the ramification of the second and third bronchi. He could then do without the tube until evening, several hours in all. Two vials of Preisz' serum. July 4, renewed extubation on account of floating membrane, at 2 o'clock in the night. After this a thick croup membrane showing the counterpart of the trachea was expectorated. The breathing afterwards became bearable. In the evening renewed intubation and two vials of Preisz' serum. Throat free. July 5 and 6, repeated extubations and intubations with final withdrawal of the tube. July 8, the breathing is free. July 11, moderate; later, high fever with good general health. July 17, a maculo-papulous serum-exanthem makes its appearance, which on July 19 becomes *erythema multiforme*. Sensorium moderately affected. July 20, no fever. Exanthem disappeared. July 23, temporary painfulness of the ankle. Paralysis did not appear. Urine always free from albumen. Bacteriologic result positive. July 26, discharged cured. Duration of intubation 41 hours.

Albuminuria was found in my material in 184 cases, that is, in 49 per cent.

Slight albumen in.....	83 cases
A moderate amount in.....	56 cases
A great deal in.....	45 cases

Between the strength and duration of the albumen excretion and the quantity of serum employed according to my experience, no connection is present, and I belong, personally, to the number

of those who deny a pernicious influence of the kidneys of diphtheria patients by the serum injection.

Prior to the serum-treatment, Baginsky found albuminuria 417 times (42 per cent) among 993 cases; true nephritis was established in 256 of these cases. Since the employment of serum, of 525 cases, 215 (40.95 per cent) showed the presence of albumen; true nephritis was proven to exist in 66 of these cases. "There is also not the slightest ground," says he, "for deducing, from the communications hitherto received, Hansemann's assertion that serum-therapy causes nephritis."

And if the opponents of serum in literature, in criticising the serum-treatment, lay such stress on individual cases like that of Oppenheim, in which shortly after the serum injection, a very intense albuminuria made its appearance, then we must call the attention of these colleagues to the fact that "diphtheritic albuminuria in a very considerable number of cases has exactly this characteristic, contrary to other forms of albuminuria, of appearing with great rapidity, and indeed not only as in this case from 3 per cent to 14 per cent, but without any assignable cause from urine free from albumen up to coagulation of the urine." (Baginsky.)

On the whole, I wonder that the partisans of the serum-therapy, in considering the question of albuminuria, have not yet directed the attention of its opponents to Sanné's\* tables (1877), which, on the one hand, offer an adequate review of the time of the appearance and the duration of diphtheric albuminuria, and, on the other, prove how hazardous in their statements are those who, not reflecting on the experiences of former times, superficially put down irritation of the kidneys among the pernicious effects of serum.

In conclusion, if Soltmann writes† that "parenchymatous degeneration of the kidneys was present in several cases, in a degree and manner that I have not usually seen in diphtheria, and externally contrasted in drawing and coloring with the customary pictures," then let us quote against this Baginsky, who expresses himself in his monograph as follows: "I have seen nothing on the dead body in the case of children treated with serum, which I have not also seen before in exactly the same condition in those

\*Sanné, *Traite de la diphtherie*. Paris, 1877.

†Ueber die erfolge mit Diphtherie. Heilserum, Leipzig, 1896.

who died from diphtheria, and indeed just as macroscopic as microscopic."

Postdiphtheritic paralysis I saw in 39 cases (9.7 per cent) in my material. Severe forms of paralysis I hardly saw during the whole time, while before the advent of serum-therapy, rapidly progressive postdiphtheritic paralyses in my hospital at any rate happened not infrequently.\* Baginsky saw symptoms of paralysis in 5 per cent of his serum cases, Soltmann in 10 per cent, Heubner in 12 per cent. We must observe that in Baginsky's material, prior to serum, postdiphtheritic paralyses figure with 6.8 per cent. Roger† observed the appearance of paralysis in 16 per cent, Sanné‡ in 11 per cent. Between the serum and earlier periods, a numerical difference as to paralysis hardly exists, yet I affirm today what I said in 1895,—that it is not impossible that from now on we shall encounter in practice both forms of paralysis (that is, paralysis postdiphtheritica and paralysis cordis) oftener, comparatively speaking, because a much larger percentage of severe diphtheria cases live through the first stage of the disease and pass on to recovery; and if Soltmann asserts "as we, however, consider the paralyses after diphtheria to be toxic polyneuritic—then the cases appearing after previous serum-treatment are, at all events unsatisfactory, notwithstanding various attempts at explanation of an immunizing and anti-toxic effect of the serum," permit me, on the other hand, to remark that Meyer observed degenerate changes in the peripheral nerves on the third day of the disease. This circumstance places the justice of the above assertions of Soltmann very much in question, as not even the most zealous partisans of the serum-treatment have claimed that anti-toxin could in general exert a restorative influence on pathologically changed cells and tissues (heart muscle, kidneys, nervous system). I observed heart paralysis with fatal result in nine cases. Each of these cases showed so severe local and general symptoms that I was prepared from the beginning, so to speak, for the appearance of heart paralysis.

With the question of the serum-exanthemata, which was recently treated in detail for the first time by Dr. Hartung§ of Soltmann's hospital, Leipzig, I will not further engage, but will confine myself to the details of my statistics.

\*S. "A belgyogyaszat Kezikönyve," I. Bd., p. 521.

†Francotte (Spengler), *Die Diphtherie*. Leipzig, 1886. S. 93.

‡l. c.

§Jahr. F. Kinderheilk. Bd. XLII. 1. T. 1896.

Among my 402 cases, I saw serum-exanthemata 91 times, that is, in 22 per cent of the cases. The appearance of the exanthem in connection with the various preparations of serum is shown in the following table:

	Cases.	Exanthem.	Percentage.
Höchst serum	209	26	12½
Preisz serum	79	27	34
Roux serum	44	13	30
Schering serum	46	11	24
Pertik serum	24	14	59
	402	91	22

The appearance of the exanthem in my 91 cases varied as follows:

The exanthem appeared:

On the 2d day in	2 cases.		36 cases.
On the 3rd day in	4 cases.	On the 10th day in	12 cases.
On the 4th day in	3 cases.	On the 11th day in	5 cases.
On the 5th day in	6 cases.	On the 12th day in	5 cases.
On the 6th day in	8 cases.	On the 13th day in	4 cases.
On the 7th day in	11 cases.	On the 14th day in	2 cases.
On the 8th day in	9 cases.	On the 15th day in	3 cases.
On the 9th day in	14 cases.	On the 16th day in	3 cases.
	36 cases.	Total	91 cases.

The duration of the cutaneous eruption was as follows:

1 day in 28 cases.	83 cases.
2 days in 15 cases.	6 days in 2 cases.
3 days in 23 cases.	7 days in 2 cases.
4 days in 10 cases.	8 days in 3 cases.
5 days in 7 cases.	9 days in 1 case.
83 cases.	Total 91 cases.

I wish, however, to mention that Sévestre\* associates the late forms of erythema which appear in polymorphous eruptions accompanying pain in the joints and general bad health with streptococcic infection, and holds such symptoms analogous with those which may be observed in connection with streptococci. These symptoms are, according to Sévestre, less severe and of shorter duration in those patients who were previously treated with Marmorek's serum, and if the serum were injected at the commencement of these symptoms, the duration of the latter seems to have been shortened in his opinion. This view of Sévestre I personally cannot accept, as through the kindness of Dr. Aronson I experimented for months with the antistreptococcic serum of the

\*Société méd. des Hôpitaux. 31 Janv. et 7 Fevr., 1896.



*Berliner Schering'sche Fabrik* and came to the conclusion that, with the administration of this serum, may appear all those exanthem forms,—including those designated late forms by Sévestre,—which were observed with the diphtheria antitoxin. This circumstance, therefore, refutes the above view of Sévestre.

Before advancing to the question of inoculation for protection, I desire in a few words to touch upon the indications for the use of serum, also on the ground of one of Sévestre's statements. At the January meeting of the Paris Soc. méd des hôpitaux in 1896, Sévestre summed up the indications for the anti-diphtheritic serum-therapy under the following heads: (a) At the commencement of every mild case, the bacteriologic examination should first be attended to; if, however, the symptoms at any time grow worse the injection should be made. (b) If the symptoms are only in the least dangerous, especially if croup of the larynx is present, the injection must be performed as quickly as possible without awaiting the result of the bacteriologic test. In my opinion this statement of Sévestre is not correct, as in the serum-therapy we must strive for just this,—to place every patient under treatment as early as possible, for the prospect for cure is then the most favorable. In my opinion, hesitation in the employment of serum is only justifiable in clinically doubtful cases. In clinically pure cases of the disease, the principle established by Behring and Roux, that the serum-treatment must be introduced as early as possible, should be upheld. This fundamental principle of the serum-therapy, even the much discussed unfortunate cases of Alföldi, Guinon, Moizard and Langerhans can by no means overthrow.

Allow me, gentlemen, a few words with reference to immunization. In my report of 1895, I emphasized the fact that it was necessary for the largest possible number of widespread immunizing injections to be made after the example of those undertaken in 1894 in the Grand Duchy of Oldenburg. Only by virtue of extensive trials of this kind, and not through sporadic prophylaxis am I glad that since then, at the instigation of the Royal Hungarian Home Department and of the Hungarian Red Cross Society, such efforts have been made. Particularly does it please me that these experiments were carried into effect by physicians from the hospital under my charge (Dr. S. Karman and Dr. F. Torday), and that I could to such a degree aid in the performance of this most important work myself.

Dr. Torday on April 11, 15 and 17, 1895, inoculated for protection 35 per cent of the children from 0-10 years old, 494 persons in all, in the town of Doboz, Békés county. The last diphtheria case in Doboz was observed on April 17, while from January 1 to April 17, there were 30 of these cases. Dr. Torday followed with interest the state of health in this neighborhood until July 18, 1895.

Dr. Karman made numerous immunizing injections, in the community of Klein-Szokond in Szatmar county, during the month of September, 1895. As a prophylactic measure he immunized all the children of the village (total 114) with the exception of four or five. During the next two months only one case of diphtheria broke out in the place, and this made its appearance in a child that had not been immunized. From the month of April to September 15, 1895, 22 diphtheria cases were observed in Szokond.

It is certain that both these essays united to the literature received hitherto are still insufficient to cause the question of the right of the immunizing injection to be considered as finally answered. If we, however, take into consideration that, without the prophylactic injection, 18 to 20 per cent on an average of the children exposed to infection fall ill, while the number of sick in connection with the injection amounts to hardly 4 per cent, then we must believe that Behring's assertion\* which he uttered in Vienna, September 25, 1894, begins to reach its realization.

The protective injections, moreover, which I pursued throughout the whole year 1895, on account of diphtheria infection in the measles ward of my hospital, has still further increased my confidence in immunization.

I herewith conclude my report. Professor Purjesz\* a year ago in this same place expressed his opinion that by virtue of the data at our disposal, it is on the whole questionable whether the hour of serum-therapy has yet struck. As concerns this view, I wish to say that for me the constantly accumulating clinical data show without doubt that the last hour of that effort to question the signal value of serum-therapy in practical life has struck.

Serum-therapy, gentlemen, gains from day to day, and from day to day saves more human lives. After a year and a half of

\*It is the duty of persons responsible for sanitary matters, and of the authorities through instruction and other ways, to effect the general introduction of the protective injection for diphtheria.

earnest and conscientious work in which the physicians of Europe and America have shared, we are able to confidently say that the serum-therapy is the most important acquisition of modern therapeutic efforts, and that the use of serum in diphtheria is the duty of every physician.

## REPORTS OF CASES.

J. SHEPARD MAY, M.D.

F. D., school boy, 10 years.

*Family History.*—A maternal aunt died of tuberculosis, and an uncle of some disease of tibia.

The mother is inclined to be asthmatic and of neurotic temperament. The father has *strong rheumatic* tendencies.

*Previous History.*—Child always very nervous and though usually tractable occasionally had fits of violent temper during which it was not thought best to thwart him in any way.

In July, 1897, the right knee became very painful and caused a marked dragging of the limb. There was no swelling nor local rise of temperature.

Treatment was obtained at the O. P. D. of a hospital and a plaster cast was applied which was removed in two weeks because of excessive pain. Others were subsequently applied, however, and in the course of three months the pain gradually disappeared and all lameness ceased.

*Present Illness.*—During the summer of 1898 he again began to drag the right leg and to complain of pain in the knee, but the affection was so slight that nothing was done until November, when he was first seen by the writer. At that time he had rapidly grown worse and was unable to walk. Severe pain existed in the right knee unaccompanied by redness or swelling. The process extended to both hips and involved both ankles to a slight degree, and although pain was not constant it was most persistent in the right hip. The temperature was elevated to 100° but the appetite was always good.

*Physical Examination.*—Showed a pale and anæmic child much overgrown.

Heart and lungs were negative.

No atrophy of limbs, and reflexes normal, left leg  $\frac{3}{4}$  in. shorter than right due to a fracture sustained in infancy. There was total inability to walk, and when attempts to stand were made, a marked genu valgum was developed. Passive motion elicited pain on inner side of right ligamentum patellæ and in the region of the right sacro-sciatic notch.

Urine S. G. 1024, pale, strongly acid and clear, no albumin nor sugar. Sediment showed an occasional red cell and a few leucocytes. No excess of uric acid.

Patient was put to bed and anti-rheumatic given for two weeks with only slight abatement of symptoms. A complete physical examination was then made, and a diagnosis of hysteria decided upon and confirmed by consultation shortly after.

A vigorous moral treatment at once was instituted and a course of tonics prescribed. Improvement was soon apparent and in the course of two months all symptoms had disappeared. Patient has been seen occasionally since and no recurrence of the trouble has been observed.

#### AMERICAN MEDICAL ASSOCIATION.

THE headquarters of the Section of Gynecology and Obstetrics at the coming Annual Meeting to be held this year, June 6-9, at Columbus, Ohio, will be at the Chittenden Hotel. The chairman of the committee on hotels, Dr. C. F. Turney, asks that the members make early application for rooms, in order to save much confusion and materially aid the committee in the entertainment of the guests.

## PHILADELPHIA PEDIATRIC SOCIETY.

FREDERICK A. PACKARD, M.D., IN THE CHAIR.

February 14, 1899.

Dr. H. M. Shriner read a paper entitled "An Easy Method of Milk Modification."

## DISCUSSION.

DR. EDSALL: I think it is well to direct attention to the fact that we are in many cases, particularly when dealing with poor dispensary patients whose milk is always of uncertain quality, calculating upon too high percentages. This is especially the case with proteids. The amount of fat is a simpler question, because cream is commonly used, and there is more variation in the actual amount of cream than in its percentage of fats, when it is obtained by the same method of separation. But the proteids must be reckoned blindly in ordinary work, and they vary to a very large extent, sometimes almost 100 per cent. In doing metabolism work I have made daily estimations of the proteids of the milk from one dairy for as long as two months, using the Kjeldahl method for nitrogen. In that time the milk sometimes varied within 24 hours from 4.1 per cent of proteids to 2.7 per cent, rising on the following day to 4 per cent once more. Such variations occurred even in the winter time, when the cattle are upon a regular fodder; in the spring, especially when they are fed largely upon fresh grass, the daily variations are so great that calculations based upon any fixed percentage are very uncertain; but it will almost always be found that the proteids are below the commonly accepted 4 per cent. The variations in the amount of fat in the milk itself are quite as great, though as I have said, they are of less importance as a rule, because the fats are obtained chiefly from cream. I have, however, seen the fats of milk vary in a series of daily estimations from 3.2 per cent to nearly 6 per cent. I have no desire to question the value of Dr. Shriner's method of calculation, and simply wish to emphasize the point he made, that the percentages of proteids and fats commonly used as the bases of calculation are in most cases likely to be too high.

DR. THOMPSON S. WESTCOTT: It may be interesting to observe that the method of calculation, suggested in Dr. Shriner's paper,

is the same as that which has long been used by the Walker-Gordon Laboratories. Any method of calculation involves the application of the same fundamental arithmetical principles, which are quite simple. Dr. Shriner is to be commended for independently reaching the results he has presented, but I doubt whether the members of the Society will consider this method simpler or more readily applied in practice than several other methods that have recently been suggested.

DR. SHRINER: I would say that I have selected these percentages as standards; any percentage can be taken as standard, and worked out by the same rule.

DR. J. P. CROZER GRIFFITH exhibited "The Materna," a new and simple apparatus for the home modification of milk, designed by a New York dealer in glassware and surgical apparatus. It consists of a glass graduate so marked that by putting into it the different ingredients of a milk mixture, up to the different horizontal lines cut in the glass, mixtures of different percentage strengths can very readily be produced. He recommends the apparatus highly, as it costs but little and saves much trouble.

#### DISCUSSION.

DR. MILLER: It seems to me that this apparatus is very valuable, because of its simplicity. I have found that the percentages of ordinary cream are so uncertain that it has been my custom in home modification of milk to direct parents and nurses to adopt the gravity method; *i. e.*, to allow milk to stand for varying periods of time, and then take off varying quantities of the upper layer and mix that with varying quantities of sugar and water. This has seemed to me a simpler method and to answer all purposes. This apparatus would simplify that method still further, and, it seems to me, would be a very valuable addition to our armamentaria. This brings up the whole question of modification of milk. I believe, as Dr. Jacobi has so long taught, that the simpler a method of feeding is, the more successful it is likely to be. The home modification of milk is utterly impossible among the poor. They cannot get the cream, often not even the milk, nor can they keep them fresh. Thus, it seems to me, the older method of mixing milk with barley water and sugar is a good method; directing always that the milk be boiled. But for those who can afford to use the laboratory, it has been a wonder-

ful addition, and the means of saving infant life and preventing disease.

DR. WESTCOTT: When Dr. Griffith showed me the apparatus I hastily worked out several formulæ, and found that in order to make the required percentage of fat, a 20 per cent cream with a four per cent milk was necessary. If they were used the result was quite accurate. The proteids were practically exact within a few hundredths of one per cent.

It is rather difficult, as Dr. Griffith has said, to get a 20 per cent cream, and it seems to me that the apparatus would have been of more general utility if it had been graduated on a basis of 16 per cent cream, which can be very readily obtained at any of the laboratories and more nearly approximated by an ordinary fairly rich cream from a common dairy.

DR. GRIFFITH: I spoke somewhat incorrectly when I referred to the use of 20 per cent cream in the apparatus. The circular which accompanies it calls for skimmed cream, which cannot be expected to average more than 16 per cent. The measurements on the graduate, however, clearly demand a 20 per cent cream. The correction on the circular is about to be made by the makers. For myself, in prescribing a milk mixture the method I prefer is to work out the desired percentages and quantities just as they are needed, without any special apparatus. There are many physicians, not constantly calculating milk mixtures, who will find this difficult, and for such this apparatus is really a boon.

As originally made, it was marked with certain weeks and months, indicating the age at which food was to be changed to a stronger mixture. I have felt this to be a distinct mistake, since it places unwisely too great a power in the mother's hands. It is wrong to teach the laity that a child's food is to be increased in strength just because it happens to be three months or six months old. This is a very arbitrary plan, and capable of doing great harm in unskilled hands. The makers of the apparatus have therefore agreed to construct one model of it, without such markings for different ages.

DR. E. E. GRAHAM: Is this absolutely correct? For instance, if you fill the graduate to a certain distance with the specified proportions of water, cream, milk and sugar, will it work out according to the percentages given; are you sure that it is correct?

DR. GRIFFITH: In answer to Dr. Graham's question I would say that all the markings are scientifically accurate, and that each glass is tested before it is put on the market.

Skiagraph of the Lower Extremities of an Ectromelus was exhibited by Dr. R. A. Cleemann.

At a recent meeting of the Society I reported a case of ectromelus which had occurred in my practice. I described the monster as wanting the femur on either side, but you will see from this very satisfactory skiagraph of the lower extremities, for which I am indebted to Professor H. Augustus Wilson, that it is the bones of the legs that have failed of development and not the femurs. There is discernible but one bone in each extremity from the pelvis to the foot, and this bone bears the shape of the femur. The head can be made out in proximity to the pelvis and below the contour is like that of the condyles, though it also resembles the trochlea, formed by the two bones of the leg; below the distal extremity are two centres of ossification, which I take to be in the astragalus and os calcis respectively, such as we might expect at this period of the child's development. The skiagraph is an excellent example of what we may learn through the Roentgen ray before death allows us the opportunity of dissection; an event which may not occur in this case until late in adult life.





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## ORIGINAL COMMUNICATIONS

### UTERINE FIBROMA.

O. BEVERLY CAMPBELL, A.M., M.D.,

Professor of Abdominal Surgery, Central Medical College, St.  
Joseph, Mo.

THE progress in operative technique and methods is so great that conclusions reached must soon be changed to conform with advancing science. The surgery of today is tending toward conservatism as to the preservation of organs and functions, sacrificing only that which is useless or a menace to the life and health of the organism. Improved technique and methods associated with surgical skill determine results with quite a degree of certainty and as mortality rates are lessened by improved measures, such measures become established practices. The pioneer work of Atlee, Burnham, Kimball and Marcy in this country for a radical cure of uterine fibroma is worthy of great praise, and while their cases were few and the mortality rate high, yet they paved the way for the wonderful achievements of today.

Fibroma of the uterus is a surgical disease, other plans of treatment being very uncertain as to cure, but it may be given a place for the relief of symptoms or where surgery is inadmissible. Electricity has some advocates, but the percentage of cures is so small that it hardly occupies a place as a curative agent. Where it is applied and fails to cure, it often aggravates the symptoms, and by setting up an inflammation in the uterus and tumor may pro-

duce extensive adhesions which render a radical operation more formidable.

Mrs. S., 39 years of age, consulted me in May, 1895. A physical examination revealed an interstitial fibroma of the uterus as large as the pregnant uterus at seven months. She was having considerable hemorrhage and pain. A radical operation was advised; in this, however, she did not acquiesce, but consulted another physician in another city, who treated her with electricity. Three months later she returned to me with her symptoms very much aggravated, with the exception of the hemorrhage which had entirely ceased, but in its stead, there was a discharge of mucus and pus. She complained of some soreness over the tumor. I performed hysteromyomectomy; the adhesions were formidable and the entire uterus and tumor showed evidence of inflammation caused, in my opinion, from the use of electricity. She made an excellent recovery. I have employed electricity in a limited number of cases and failed to cure a single case. I consider it quite efficient in arresting hemorrhage but it is often necessary to use it frequently for this purpose.

The course of uterine fibroma is quite varied, dependent somewhat on the variety of the tumor. The submucous variety is characterized by early hemorrhage and paroxysmal pain; the hemorrhage begins at the menstrual period and is usually profuse and prolonged, lasting from eight to ten days, finally becoming continuous but slight during the interim between periods. This form of tumor usually demands surgical interference early. There are several methods of operative procedure that may be used in dealing with this variety of tumor. Morcellation through the vagina may be practiced in selected cases, when the tumor is small and where it can be readily reached through the internal os and where the tumor is pedunculated. A careful aseptic technique is to be rigidly followed in practicing this method. Professor A. Martin of Berlin has originated a very excellent operation for the removal of non-infectious submucous fibroma. The operation consists in opening the abdomen, delivering the uterus onto the abdomen, making an incision into the fundus, opening the capsule and shelling out the tumor. The wound in the uterus is carefully closed with sutures and returned into the pelvis. The rubber ligature may be placed around the cervix to control hemorrhage so that there need not be any great loss of blood during the operation. Hysteromyomectomy is applicable to selected cases

of submucous fibroma, the stump being closed with sutures and returned into the pelvis; or, where a pedicle can be obtained, the *serre-nœud* or rubber ligature may be used and the stump treated extra-peritoneally.

My first experience in treating the stump of a sub-mucous fibroma extra-peritoneally was in 1895. Mrs. G., 41 years of age, the mother of two children, the younger being sixteen years of age, had been complaining of uterine pain and hemorrhage for six months; she had been having continuous hemorrhage for about two months. She was nearly exsanguinated, being unable to assume the upright position; her pulse was weak, 140 per minute. The hemorrhage was controlled by tamponing the vagina. She was removed to St. Joseph's Hospital and after a few days' preparation, I performed hysteromyomectomy, applied the *serre-nœud* and treated the stump extra-peritoneally with a satisfactory result. The tumor was the size of a foetal head.

Pan-hysteromyomectomy must necessarily be an operation of selection in a goodly number of cases of this form of uterine fibroma. Ergot is quite beneficial in controlling hemorrhage in submucous fibroma and it is believed by many observers to cause shrinkage in the tumor. When the tumor is inclined to pedunculation, a long course of ergot may cause its expulsion into the vagina, where its removal is easy and free from danger. Ergot is not well borne by the stomach and is a heart depressant. My experience in its use in the treatment of uterine fibroma is not very extensive. However, I had one case of submucous fibroma in a woman 41 years of age, in which ergot was successfully used. A tumor was emerging from the internal os and was about the size of a hen's egg. A systematic course of ergot was begun—the fluid extract was used—beginning with 30 minim doses increasing the dose 5 minims every day until two drachms were used. Such a course was kept up for about one year. Quinine, iron and strychnine were also given. On several occasions, the stomach ejected the ergot and then ergotole was administered hypodermically. Very severe uterine pain was at times produced. After the ergot had been continued about eight months, the tumor appeared at the external os and in about four months more, it escaped into the vagina but was firmly attached to the fundus by a pedicle, which was clipped and the tumor delivered. This is the only case in which I ever succeeded in accomplishing the expulsion of a sub-

greatest advancements in surgical methods and technique of the present century.

## OPERATIONS DURING PREGNANCY.

CHARLES P. NOBLE, M.D.

THE question of operations during pregnancy is no longer a novel one, and my purpose in making this report to the Society is not to advocate any new views upon the subject, but simply to report my experience in dealing with this class of cases.

My experience embraces twelve cases; five of ovariectomy, one of myomectomy, one of hysteromyomectomy, one of appendicitis with abscess, one of intestinal obstruction during pregnancy, one of intestinal obstruction after labor, and one of fistula in ano. One patient aborted, but the ovum was dead before the operative interference, which only hastened the abortion which was inevitable. The patient upon whom myomectomy was performed also aborted. This operation was not premeditated, having been undertaken with the diagnosis of ovarian tumor. The results of myomectomy in the hands of others have been so unfavorable from the standpoint of bringing on abortion, that in my judgment the conditions must be unusual to make the operation justifiable. As a routine procedure it is certainly contra-indicated. All of the ovariectomies did well, this experience corresponding with that of other surgeons, and being in happy contrast to the result of the let-alone practice which so often leads to difficulties in delivery, and, unless prompt and intelligent operative measures are taken, to the bruising, infection and necrosis, of the tumors, with peritonitis subsequent to labor. In none of the cases was there the least difficulty in the performance of ovariectomy, and in every way the patients made as good recoveries as though they had not been pregnant.

In one case, in addition to the ovarian tumor of the left ovary, there also existed a parovarian tumor upon the right side. In this case the left appendage was removed, and the parovarian tumor was peeled from its bed in the right broad ligament, thus leaving *in situ* the normal right uterine appendage. This operation was among the early ones in which this procedure was practised. In

my opinion, it is one of the best additions to conservative gynecology.

The following are the cases I have met with:

Mrs. O., aged twenty, one miscarriage, was admitted to the hospital September 7, 1892. The history was, that, having missed her monthly sickness some three months previously, she had had irregular bleeding from the uterus, with severe abdominal pain, accompanied by faintness. On examination a mass was found filling the left half of the pelvis, and having the characteristic feel of old blood-clot. To the right and above could be felt a rounded body, which apparently was the fundus of the uterus displaced by the mass filling the left half of the pelvis. A diagnosis of hematocele due to ectopic pregnancy was made, and an abdominal section was performed with this diagnosis. On opening the abdomen it was found that we were dealing with an intra-uterine pregnancy. There was a distinct sulcus in the fundus, the right half of the fundus having the appearance of a slightly enlarged fundus of the normal uterus. The left half was very much distended and entirely filled the left half of the pelvis. I supposed that we were dealing with a bifid uterus, the left half of which was pregnant. The patient aborted, when the explanation of the physical signs was very simple. It was found that the left half of the uterus was filled with old, laminated blood-clots, this condition giving the ordinary signs, on examination, of hematocele, and the bifid uterus, of which only the left half was distended, had led to the diagnosis of ectopic pregnancy. The patient made a good recovery, and was discharged on the 29th of September.

Mrs. P., aged twenty-seven, multipara, was admitted to the hospital May 15, 1893. Her general condition was bad; she was five months' pregnant; and had an ovarian tumor of the right ovary, containing about one gallon of fluid. Ovariectomy was performed on the 17th. She made an uninterrupted recovery, and was discharged on the 18th of June. I learned subsequently that her pregnancy pursued its normal course, and she was delivered at full term of a living child.

Mrs. M., aged twenty-one, mother of one child, in fair general condition, was admitted to the hospital, May 16, 1893. She was threemonths' pregnant, and had a small ovarian tumor of the right ovary, containing less than a quart of fluid. Ovariectomy was performed on the 19th. She made an uninterrupted recovery, and was discharged June 10th. After her return home she pro-

duced an abortion upon herself, and died of blood-poisoning about six weeks after her discharge from the hospital.

Mrs. A., aged thirty-eight, nullipara, was admitted to the hospital December 1, 1894. She was recently married, and had immediately become pregnant, and was mortified to find that very soon her abdomen was much larger than the period of her pregnancy, which had advanced to two months when she came under my observation. She had a freely movable pedunculated tumor, which was very soft on palpation, and which was supposed to be an ovarian tumor, some three or four inches in diameter. Abdominal section was performed on the 3d, and on withdrawing the tumor from the abdomen it was found to be a pedunculated oedematous fibroid. The pedicle was very small, and it was decided to remove the tumor. In spite of the very free use of morphia, the patient aborted on the fourth day after operation; otherwise she made a good recovery, and was discharged on January 2, 1895. This patient subsequently became pregnant, and was delivered at term of a living child. When I last heard from her, she was in good health, and had had no additional children.

Mrs. H., aged twenty-seven, nullipara, in good general condition, was admitted to the hospital June 5, 1895. She was some six weeks' pregnant, and was admitted because of a tumor of the left ovary, containing about a pint of fluid. The tumor contained an unusual amount of solid matter, the cyst cavities being small and the cyst walls unusually thick. It was also found that she had a small right parovarian cyst. Abdominal section was done on the 7th. The left uterine appendage and tumor were removed, and the right parovarian cyst was peeled out of its bed, leaving the ovary and tube intact. She made an uninterrupted recovery, and was discharged July 2. The pregnancy pursued an uninterrupted course, and a living child was born at term.

Mrs. K., aged twenty-nine, primipara, was admitted to the hospital February 27, 1897. She was pregnant three months, and suffering from an ovarian tumor of the left ovary, containing about one quart of fluid. Ovariectomy was performed on March 1. She made an uninterrupted recovery, and was discharged March 27. The pregnancy pursued a normal course, and she was delivered at full term of a living child.

Mrs. P., aged thirty-seven, mother of four children, was admitted to the hospital June 18, 1898. She was in fair general condition, but very anæmic. The abdomen was well-filled with a

large fibroid, which was growing rapidly. There was reason to suspect a pregnancy of two months. I was the more inclined to operate because this had been advised by another gynecologist of experience before the patient consulted me. The tumor was approximately five inches in breadth and ten inches in length. Hysteromyomectomy was performed on the 20th. The patient made an uninterrupted recovery and was discharged July 16. The pathologist, Dr. Babcock, reports that the tumor mass was largely made up of the intramural fibroid. A twin pregnancy of two months existed. He adds: "It scarcely seems possible that full term could have been attained in the presence of so large a tumor." This is the less likely in the case of a twin pregnancy, which was found in this case.

The last abdominal section which I have done during pregnancy I did during the current week, for obstruction of the bowels. The patient was about forty-five years of age, a working-woman, in bad general condition, that is to say, she was older in appearance than in years; she had hard arteries, and looked like a woman of fifty or fifty-five. The operation was done Friday, January 27, 1899. The patient's bowels had not been moved since the preceding Monday. However, she had been about and suffered no special inconvenience until Wednesday, that is, two days before the operation, when she began to vomit. The usual remedies for the vomiting and for the non-movement of the bowels were given; and, as her physician did not see her until Wednesday, there was no reason to suspect obstruction of the bowels; but as these measures did not succeed in emptying the bowels and the vomiting persisted, it was evident that she had obstruction. I saw her first on Friday, when she was constantly regurgitating the greenish-black fluid which precedes fæcal vomiting, and perhaps it was slightly fæcal, but it was not distinctly or markedly so. Repeated efforts were made over two hours to unload her bowels by irrigating the colon and by purgative enemas without any result, hence operation was decided upon. There was very little to guide one as to the location of the obstruction. There was nothing in the hernial canals. Apparently, there was an undue dullness in the right flank, and it was thought the patient might have an ovarian tumor in the right side, or that the most probable cause of the obstruction, if not due to tumor, would be appendicitis. Therefore, the incision was made in the right semi-lunar line. On opening the abdomen, we were confronted with the large ute-



rus, it being seven months' pregnant. On finding the vermiform appendix, it was normal. There was fluid in the peritoneum, but all that could be made out was that the intestines were paretic and much distended. However, I noticed that the ileum passed down into the pelvis, it seemed to me, unduly far, considering that the woman was pregnant, and on tracing the ileum I found it adherent in, or at least to, the femoral canal. She didn't have a hernia in the sense that the bowel was in the canal, but densely adherent to the old sac of a hernia. The liberation of this bowel was quite difficult, because it was hard to expose the parts. The uterus was in the way, and the incision rather high to work in the femoral canal, and in trying to separate the very dense adhesions the bowel was ruptured and was subsequently stitched. I observed at the time that all the bowels in sight were distended, whereas, we are taught, if we have an obstruction of the bowel that the part of the bowels below the site of obstruction should be collapsed. The incision was closed without drainage. I would have drained had not the seven months' uterus been in the way. The patient had had labor pains and the doctor admitted one finger. It seemed folly to drain, under the circumstances, and I thought it best to let the patient take the chance. The bowels were moved four times after operation, but the woman developed peritonitis and died. There was not only peritonitis but there was also trouble with the lungs. Preliminary to the abdominal section, knowing that her stomach was full of the material which she was vomiting, the stomach was washed out, but in spite of that, large quantities of the vomit constantly ran out during the operation, and more or less got into her bronchi, so there was every reason to have inspiration-pneumonia in addition to the difficulties in the abdomen.

After her death a post-mortem was made and it was found she had some peritonitis; and also that an additional band existed in the region of the sigmoid. It is quite possible that this had something to do with her death, although I believe she died of peritonitis.

My experience in this case, and the difficulties of finding anything in the abdomen, except the seven months' pregnant uterus, and the difficulties of dealing with the adherent bowel when we did find it, make me believe that it would be wiser in such a case when we are dealing with so serious a condition as obstruction, to promptly do hysterectomy and get the big uterus out of the way.

and then we could proceed in a systematic way to do whatever is necessary. I am inclined to believe that the patient would have had a better chance for recovery had this been done.

I have seen a number of other operations during pregnancy. One, the first operation I ever had the pleasure of seeing Dr. Boyd do, was an ovariectomy in a pregnant woman. I assisted him, and the patient made a happy recovery.

Another operation with which I was connected was a case of appendicitis complicating pregnancy. I saw this with Dr. Boyd years ago, before we knew much about appendicitis. In that case the abscess was drained by Dr. Boyd, but the patient died. Dr. Boyd will be able to give us the details of the case.

I saw another case of obstruction of the bowels with Dr. Longaker years ago, where the obstruction was brought about by the fact that the bowel was adherent to the pregnant uterus. After labor, when the uterus sank down into the pelvis it made traction on the bowel and brought about obstruction. This patient died.

These cases constitute my full experience in abdominal surgery in pregnancy.

Mrs. C., aged thirty, multipara, was admitted to the hospital February 8, 1896, suffering from a fistula in ano of some months' duration. She was four months' pregnant. Believing that the risks of a labor at term, complicated by puriform discharges in contact with the peritoneum, was more serious than the risks of abortion, the fistula was incised and sutured. The wound suppurated, and it was subsequently necessary to pack it until it healed by granulation. She was discharged April 7. The pregnancy pursued a normal course, and at full term she was delivered of a living child.

With reference to the general principles to guide one in operations during pregnancy, I believe that, undoubtedly, all ovarian tumors which are recognized during pregnancy should be promptly removed, even quite late in pregnancy. The risks of operation are much less than the risks of delay. All of us have been obliged to operate after labor for peritonitis from the bruising of ovarian tumors, and not only our own experience, but that of every other surgeon, shows that the risks are very great when the tumor is allowed to obstruct labor. When this plan is followed my opinion is that the tumor should be removed immediately at the conclusion of labor.

Fibroid tumors, as already stated, I think should not be oper-

ated on by myomectomy during pregnancy, unless there is some very special reason to the contrary; because the chances of abortion are so great, and we practically invite it by interference. The only variety of fibroid tumor which it would be justifiable to remove would be a cervical fibroid or one situated very low in the pelvis, which could be gotten out by the vagina, and should be taken out in the later months of pregnancy, when, should premature labor occur, it would probably do no great harm.

With reference to conditions giving rise to the discharge of pus about the genitalia which are amenable to operative treatment during pregnancy, I believe operation is strongly indicated, as the risks of the operation are far less than is the risk of labor through the genital-canal soiled with pus.

With reference to general operations in various parts of the body, it seems to me that the indication for operation should be well marked, that is to say, evidence should be present that the patient's life or health would be seriously jeopardized by leaving the condition continue until after labor. It has been necessary to operate upon pregnant women many times, and they are not apt to abort. The fear of bringing on abortion by operations in other parts of the body is not correct. So if the indication points strongly to operation, I believe it should be carried out. This applies especially to such diseases as appendicitis or cancer, which threaten life immediately or more remotely.

The only condition to which I care to refer in particular is that of hemorrhoids. The teaching of the books in reference to hemorrhoids is that they should be left alone until after labor. There are several serious consequences which may arise from this, and I think this teaching should be departed from in special cases. I know of one case in which the veins were so pressed upon during labor that the hemorrhoids sloughed. In my judgment it is a more serious matter to have sloughing hemorrhoids complicate the puerperium than to tie them off, in the later weeks of pregnancy. I should not hesitate to remove large, painful hemorrhoids during the last month of pregnancy, so that the wound would be healed before labor came on.—(*The American Gynecological and Obstetrical Journal*, April, 1899.)

## ABDOMINAL SECTION UNDER COCAINE ANÆSTHESIA FOR RETROVERTED ADHERENT UTERUS IN A CASE WITH MARKED CARDIAC SYMPTOMS AND GOITRE.

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THE following case is of interest for several reasons. Quite an extensive operation was performed under cocaine anæsthesia; the abdomen was opened, the adherent retroverted uterus was released, brought forward and stitched to the abdominal wall. As a result the patient was entirely relieved of the local symptoms namely, the backache and pelvic discomfort of which she had complained for over a year. At the same time her general condition improved, the cardiac symptoms became less pronounced and the goitre diminished considerably in size. The history of the case is briefly as follows:

The patient, a married woman aged 33, presented herself at the gynecological clinic at the Charity Hospital two years ago complaining of backache and of general pelvic discomfort. On examining her at that time I found the vaginal outlet much relaxed, the uterus being in marked retroposition and adherent; both ovaries were prolapsed and could be felt lying in the pouch of Douglas. At this time also cardiac symptoms and the presence of a goitre were noted and she was consequently referred to my colleague, Dr. J. P. Sawyer, who treated her for this condition with some apparent improvement. One year later the patient returned to me with the request that I would undertake some operative procedure for the relief of her backache and the pelvic symptoms. On examination I found the pelvic structures in much the same condition as they had been on the previous occasion. It was impossible to obtain a complete history as the patient was a Pole and spoke and understood very little English. She was admitted to the Lakeside Hospital, October 10th, 1898, at which time the following notes were made:

The vaginal outlet is much relaxed; the vaginal walls are pro-

lapsing. The cervix uteri points towards the symphysis pubis. The uterus is in a retroverted position; it is somewhat enlarged and adherent. The ovaries are prolapsed. The general physical examination gives the following:

The patient is of medium size, somewhat poorly nourished and rather anemic. The lips and mucous membranes are a little pale. Tongue coated. The pupils are equal and react to light and accommodation. The eyeballs protrude slightly. Pulse 130 to the minute, regular and of a good volume; tension high. There is a goitre which involves both the right and left lobes of the thyroid gland; the right lobe is the larger. On inspection marked pulsation is evident over both lobes. On palpation a distinct thrill can be felt over both lobes; more marked in the left. On auscultation a hum is heard over both lobes and over the right a distinct musical tone. The circumference of the neck over the most enlarged point of the goitre measures 34.2 cm. ( $13\frac{1}{2}$  inches). The horizontal measurement of the swelling is 14 cm. ( $5\frac{1}{2}$  inches); the vertical, 6.3 cm. ( $2\frac{1}{2}$  inches). The thorax is emaciated, the ribs are prominent. The intercostal spaces are wide and the costal angle is acute. Expansion is good and about equal on both sides. Chest clear on percussion. Breath sounds normal. The apex beat of the heart is in the fourth space inside the nipple line. Relative dullness at the third rib and at the left sternal line. A well defined systolic murmur can be heard all over the chest but is most marked at the apex. The second sounds are clear. Hepatic and splenic dullness is normal. The borders are not palpable. The kidneys cannot be felt. The abdominal muscles are relaxed and there is a marked tenderness in both iliac regions. There is some tenderness over points in the line of the tibia; there is some œdema of the legs which is increased after walking. The urine shows nothing abnormal.

In order to relieve the pelvic condition it was decided to release the adherent uterus. The operation was performed October 10, 1898, at Lakeside Hospital. Owing to the general condition of the patient it was thought better to employ local anæsthesia. Eight minims of 5 per cent solution of cocaine having been injected beneath the skin, an incision was made in the median line down to the muscle sheath. Eight minims more were injected at different points along the median line into the muscular structures and the incision was then carried into the peritoneal cavity. The adhesions binding the uterus down to the rectum were then

separated without any apparent discomfort to the patient. It is to be noted, however, that even slight traction upon the ovaries seemed to produce considerable pain. The uterus was brought forward and stitched according to the ordinary suspension method. The peritoneum was closed by means of a continuous catgut tuture; chromicized catgut was used for the fascia and a continuous subcutaneous catgut suture for the skin incision. The patient made an uninterrupted convalescence and left the Hospital November 8, 1898, 29 days after her admission. At the time of her discharge, she was entirely free from backache and from all pelvic discomfort. The circumference of the goitre on October 20, was 33 cm. (13 inches) and on October 25, 31.8 cm. (12½ inches). When she left the hospital on November 8, it measured 12 inches, a reduction of one inch in 29 days. The pulse at the time of her admission varied between 106 and 150. After the operation the rate gradually diminished and at the time of her discharge it averaged about 104. The diminution in the size of the goitre and the slowing of the pulse was probably in the main due to prolonged rest in the horizontal position, and perhaps also to some extent to the tincture of digitalis which was given in small doses—10 drops twice a day after the fifth day after the operation. On the whole it may be safely said that the patient has received marked benefit, and up to the present time (February 14, 1899) there has been no return of her former symptoms.—(The Cleveland Medical Gazette, February, 1899.)

## REVIEW OF GYNECOLOGY.

DIAGNOSIS OF THE PLACENTAL SITE. G. Leopold (*Centralblatt für Gynäkol*, No. 12, 1895) says the following communication should be studied in connection with Bayer's observation in the diagnosis of the placental site in No. 7 of this year's *Centralblatt*, and, in my opinion, ought to bring about an understanding as regards this matter:

In the first place, Bayer errs in his assumption that the first case in which my diagnosis was definitely made before the operation dates from June 5, 1886. The wholly characteristic course of the tubes converging forward and upward in posteriorly seated

placenta was already assumed and verified in the fourth Cæsarean section on November 28, 1884, as may be found in Vol. II. of the *Arbeiten aus der Dresdener Frauenklinik*, p. 154. The words "previously made diagnosis, placenta behind" are distinctly set down, and the diagnosis was verified on opening the uterus. According to the description, which accompanies this case, there cannot be the least doubt that the tubes converged upward exactly as in all later cases in which the diagnosis no longer presented difficulties.

In case Bayer is not convinced, I adduce expressly from the fourth Cæsarean section which lies before me, that at the time the course of the tubes and round ligaments was not only exactly determined by me through external examination, but also repeated by a most careful drawing in detail. This drawing, which is to be found today in the corresponding number of the record, leaves out nothing in the way of distinctness and corresponds exactly to Fig. 2 of my article on p. 164, in which the forward and upward converging course of the tubes in posteriorly situated placenta is represented.

The statement and drawing furnish irrefutable proof that we have been occupied with this subject since 1884.

In similar fashion we succeeded in the seventh Cæsarean section (January 10, 1886) in our conjecture that the placenta was seated above and to the left, and therefore back of the adnexa, diagnosis based upon the forward and upward course of the adnexa. "At the left of the uterus (the organ being turned to the right on its longitudinal axis) was found a soft prominence of doughy consistence," which corresponded to the observation made at my fourth Cæsarean section, was regarded as the placenta, and proved to be such after opening the uterus.

In the eighth Cæsarean section (February 8, 1886) the diagnosis of the placental site was erroneously given. But in the tenth case (March 14, 1886), as may be clearly and distinctly read, the anatomical interdependence of the tube course and placental site was so characteristic that coincidence was no longer to be thought of.

All these citations are repeated almost word for word in the journals of my assistants and externes; and yet Bayer says, after such clear communications, that the first case in which the diagnosis was definitely made was on July 5, 1886. After the Münchner Congress, did he not read pp. 154 and 162?

I am utterly unable to recall his communication in Munich before a Society meeting. And if I failed at that time to mention my own investigations in this department, it was because they were incomplete, needing plenty of time to ripen, especially since they have to be studied in the living.

After all, it was not through Bayer that I was also influenced toward these studies, but the repeated Cæsarean operations, the dangers of hemorrhage in artificial premature delivery, my anatomical studies of the placenta, and my sketches made during the constant practice of external investigation which told me that through observation on the living and specimens of the hitherto unilluminated region of placental site must clearness be attained.

In consequence thereof must I most decisively emphasize that in advance of Bayer and independently of him I have formulated this axiom on the diagnosis of placental site through my own investigations in the living, "if the tubes converge forward and upward the placenta is seated at the rear; if they run parallel to the axis of the corpus uteri—the woman being recumbent—then the placenta is seated in front."

The progress of my investigations appears from the following: First from the establishment of my axiom in cases four, seven, eight and ten; then from mention of same in Korn's work on artificial premature birth in 1887, and in Buschbeck's work on the same subject which is contained in the first volume of the *Abhandlungen aus der Dresdener Frauenklinik* at the beginning of

1893. In the same year appeared Palm's work (*Zeitschrift f. Geburtsh. u. Gynäk., Cd.; xxv*) in which is to be learned when and where Bayer first published his investigations on the placental site. They are comprised in a single brief notice found in Frentz's *Gynecol. Klinik* (Strassburg, 1885), p. 463. This mention is in Bayer's comprehensive work "*Zur Morphologie der Gebärmutter*," so hidden that it is pardonable to overlook it. It reads thus:

"According to my relatively meagre observations on anatomically studied uteri there appears to be a constant relation between the placental site and insertion of the tubes, the latter extending backward when the afterbirth is on the anterior wall, and when it is on the posterior wall remaining laterally or rather directed forward. Possibly points for the diagnosis of the placental site may be arrived at from study of the living."



We extract this mention that his observations have been but limited, and that therefrom data might possibly be gained.

Later on he has "repeatedly made the diagnosis of the placental site from his practice and elaborated a method for himself, but found no opportunity to extend his studies sufficiently for general use."

After all both of us, Bayer and myself, have independently, and so often occurs, occupied ourselves with the same subject, and each of us has been led to the correct judgment.

When I read Palm's work in the second part of the xxvth volume of the *Zeitschrift* and saw the active part which my former scholar, Müllerheim, had taken in the work, I had a right to expect that the investigations which Müllerheim had already learned and practiced in Dresden would have been recalled at least once in Palm's work.

On the contrary, there is the silence of death on this matter in Palm's work.

I leave it to the reader how this procedure should be characterized. In any case, I have expressed myself very moderately in saying "that I was very sorry that Müllerheim did not put Palm in mind of these investigations (p. 162)."

It would have been better if Bayer had let the responsibility rest upon him.

I confess now that having read Palm's work and Bayer's remarks, I am under the impression that Müllerheim's knowledge of my diagnosis of placental site first incited Palm to his investigations and lead the latter to the same principle of diagnosis which had been developed by me during 1884-1886.—(Obstetrics, January, 1899).

#### ABDOMINO-VAGINAL EXPRESSION OF THE PLACENTA IN THE TREATMENT OF ABORTION.

In *Le Progrès Médicale*, September, 1898, Budin describes a method of removing retained secundines in cases of incomplete abortion, which is deserving of serious attention. He first points out the risks of using a metal curette for detachment of the placenta in these cases, and maintains that the finger-nail alone should be used. Forceps he considers equally dangerous, and is of opinion that this instrument should never be introduced into the uterus for the removal of placental remains. He relates several cases in which the uterine walls have been perforated with

forceps used for this purpose, coils of intestine being dragged into the vagina with them. This accident is nearly always fatal.

Budin urges that the detachment of the placenta and the decidua may always be accomplished by two fingers passed into the uterine cavity. The secundines should be completely detached first; then, if the placenta is voluminous, it should be torn into two or three portions with the fingers, so as to facilitate its expulsion. Budin thus describes the manœuvre, which he names "vagino-abdominal expression": "The whole hand is passed into the vagina, and the fingers, palms uppermost, are placed in the posterior fornix. The other hand, placed upon the hypogastrium, forcibly depresses the abdominal wall, which is completely relaxed by anæsthesia. With the fingers hooked round the fundus, pressure is exerted upon the fundus and anterior wall of the uterus. The organ is thus compressed. The placenta and decidua are squeezed through the cervix, and pass into the palm of the hand, which is in the vagina." Even if the cervix will only admit one finger, the placenta can be thus expressed.

#### SENILE ENDOMETRITIS.

J. LORAIN (*La Revue Médicale*) says of the

**Definition.**—An inflammatory condition of the uterine mucous membrane, occurring at a period when the genital apparatus has undergone the anatomical and physiological changes included under the term of "Senile Involution." The disease is therefore distinct from the metritis which is associated with the menopause, and which is recognized as the predisposing cause of the circulatory troubles of which the uterus is the seat at that period.

**Cause.**—As with other inflammatory conditions of the uterus, the disease is due to infection with micro-organisms. Staphylococci, gonococci, and Koch's bacillus have all been found to be present by different observers.

**Frequency.**—The disease is a somewhat rare one, forming a little over 7 per cent of all cases of endometritis; it occurs most frequently in women whose age ranges from fifty to sixty. Such cases form about two-thirds of the total number, the remainder being divided equally between women of forty-five to fifty, and sixty to seventy respectively.

The explanation of the comparative rarity of the disease is probably to be found not only in the rarity or absence of the usual

causes of endometritis (childbirth, contagion, etc.), but also in the peculiar anatomical condition of the generative organs at this period of life. Thus we find the cervix becoming smaller and smaller until it scarcely projects into the vagina, and may indeed, be represented by an orifice lying flush with the vaginal culs-de-sac; the cervical canal, the internal and external os all become narrowed, sometimes to such an extent as to render the passage of a sound difficult. The vagina, moreover, becomes contracted, and often presents circular or semi-circular cicatricial bands, especially in the posterior cul-de-sac running to the posterior lip of the cervix. It must be remembered that these anatomical modifications not only act as a defence against the penetration of infectious matter from the outside, but also tend to keep pent up within the uterine cavity the secretions of the mucous membrane; these will tend to decompose there, and give rise to general infection.

*Symptoms.*—One of the first symptoms of senile endometritis is a semi-purulent, yellow or greenish discharge, often streaked with blood and occasionally offensive; the discharge is sometimes continuous, sometimes intermittent. Metrorrhagia is not rare, and is occasionally so marked as to give rise to what is described as the hemorrhagic form of the disease; the loss of blood is, however, rarely great, and never by itself constitutes a grave symptom.

The disease is usually but slightly painful, the subjective symptoms being limited to a feeling of weight in the hypogastrium and to sacralgia.

Sometimes, however, the patient complains of smarting and itching about the vulva; in most cases this is due to the irritation of the discharge, but occasionally no signs of inflammation are present. Frequency of micturition and pain after the act are sometimes observed.

There is little tendency for the inflammation to spread to the Fallopian tubes, but it does occasionally take place. Peri- and para-metritis are practically never found.

The uterus is usually found to be of normal size, mobile, but slightly tender; the speculum reveals a cervix more or less inflamed, of a deep-red color, swollen and smooth. Cervical erosion is rare.

*Course.*—The course of the disease is essentially a chronic one; the symptoms become more marked after exertion and fatigue; but the acute or subacute exacerbations found in endometritis

anterior to the menopause, and probably due to menstrual congestion, are not found in senile endometritis.

The general condition of the patient is always to some extent affected by the disease; loss of flesh, anæmia, dyspeptic troubles, occasionally rigors and night-sweats, and, in fact, a condition of cachexia more or less marked, are found.

*Diagnosis.*—The diagnosis of senile endometritis is of the greatest importance, owing to the resemblance its symptoms bear to those of cancer of the body of the uterus. The treatment depends essentially on an accurate differential diagnosis. If the disease is merely endometritis, medical treatment will always guarantee a cure. On the other hand, if the disease is cancer of the body, hysterectomy, at least in the early stages, is the only rational treatment, and the prognosis becomes grave, not only by reason of the dangers of the operation itself, but also because of the grave risk of a recurrence of the disease.

The points in common between endometritis and cancer of the body of the uterus are:

1. Blood-stained discharge coming on after the menopause.
2. Offensiveness of the discharge.
3. Periodic pain.
4. Cachectic condition.

But although this group of symptoms is found in the two diseases, the points of difference are, nevertheless, fairly well marked.

To take these points in order, we have:

*Metrorrhagia* always present and occasionally profuse in cancer, whereas in endometritis it may be absent, and is rarely large in amount.

*Offensiveness of the discharge* is found at an earlier period in endometritis than in cancer; in the latter it only occurs when the nodules of new growth break down and are expelled by uterine contraction into the vagina. In endometritis the odor is due to chemical changes taking place in the discharge retained within the uterine cavity. The discharge, moreover, is less purulent and more serous in cancer than in endometritis.

*Pain* may be quite absent, and is rarely intense in endometritis; in cancer, on the other hand, it is almost always present, except in the very early stages. It is always found as soon as the new growth is sufficiently advanced to distend the cavity of the uterus and bring into play the contractility of the organ. We then ob-

serve these paroxysmal attacks of pain which Simpson considered pathognomic of cancer.

*Cachexia* is the same in the two cases, but in endometritis it soon ameliorates as the result of treatment, whereas in cancer improvement is either absent, or is, at any rate, much slower in appearing. It cannot, however, be doubted that the cachexia of cancer may be materially improved by the careful and persevering use of antiseptics.

There are, however, a few other points which will aid in distinguishing the two diseases.

It is occasionally possible to insert the finger into the cervical orifice and feel the nodules of new growth. Moreover, cancer is a much rarer disease than endometritis; the bulk of the uterus is increased, and its mobility diminished, and its surface often nodular in cancer; whereas in endometritis its mobility and its size are almost, if not quite, normal, and its surface smooth. It is, moreover, more tender to the touch than cancer.

Cases, however, do arise in which doubt still exists as to the character of the disease, and these may be decided by curetting the uterus and making a histological examination of the portions brought away.

*Treatment* should have two ends in view:

1. To allow of the free escape of the secretions of the uterine mucous membrane:

2. The application of antiseptics to the interior of the uterus.

The free escape of the contents of the uterus is of special importance, since, as long as these are pent up in its cavity, no cure can be expected. Generally speaking, the dilatation of the cervical canal is best affected by Hegar's dilators; but cases arise in which the stenosis of the cervical canal is so advanced that the smallest dilator cannot be introduced; in such cases dilatation must be obtained with laminaria tents. It is generally sufficient when the passage of Hegar's No. 7 or 8 can be effected, but this will often require two or three sittings at intervals of twenty-four or forty-eight hours. After dilatation, one of the following solutions should be applied to the cavity of the uterus:

Creosote, Glycerine, Alcohol. . . . . equal parts of each

or,

Ichtyol. . . . . 10 parts.

Glycerine. . . . . 40 parts.

or,

Pure tincture of iodine.

These are introduced into the uterus by means of a flexible sound, the last two inches of which are surrounded by cotton-wool; this is then soaked in the solution and applied to the whole surface of the uterine mucous membrane.

The treatment should be renewed two or three times a week, and in the intervals a drain of antiseptic gauze should be left in the uterus, a tampon of similar gauze being left in the vagina.

As the cervical canal tends to contract up again between the dressings, it will be found necessary to further dilate it from time to time.

The duration of treatment carried out according to the above principles will be found to be approximately from three to four weeks.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### CRETINISM AND ITS TREATMENT.\*

F. A. PILLSBURY, M.D.

THE definition of the term Cretinism seems to depend upon a purely personal and arbitrary acceptance of a derivation, having for its origin the conditions and circumstances which entered primarily into its recognition as a disease. This disorder was characterized by a peculiar form of idiocy, which was first observable in certain parts of Europe, notably Switzerland, where its chief etiological factor was supposedly due to the limestone or chalk formation of the mountains about it, and which was usually associated with a Goitrous diathesis. Perhaps the native peasants, like the aborigines of our own country, and in fact wherever simplicity of mind and custom and superstition is to be found, ascribed the disease to an especial visitation or favor of Providence; and they indicated their recognition of the affliction by the term *Chrétien*, which is the Swiss provincial dialect for Christian. The most logical derivation of the word, however, is from the Latin *Creta*, or chalk, for the reasons as just set forth, viz: the lime formation of the region in which the disease is prevalent. At the same time, many objections have been raised as to the justice of an appellation which indelibly stamps the afflicted one as an idiot or an outcast of nature; and to Dr. George W. Cray, of New York, whose authority in the treatment of this disease is of the highest in America, belongs the credit of an effort made to introduce the term *Myxœdema*, as applying not

\*Read before the Brookline Medical Club, April 12, 1899.

only to the adult form of the disease, but to the infantile as well, whether it be congenital in its origin or acquired.

For greater accuracy this paper deals with the term Cretinism, not from choice, but because the case to be reported later is of the congenital type.

Cretinism is a disorder which has been found to invariably follow the mal-development or the total absence of the thyroid gland during intra-uterine life, or the arrest of its growth, whether from atrophy of its substance by disease or by fibrous infiltration in extra-uterine life, or the total extirpation of the gland itself,—which, however, is rarely found as a cause of Cretinism in children. Dr. Starr, of New York, defines Cretinism as a congenital condition, preferring to call all other conditions Cretinoid or Myxœdematous. Osler limits the term Cretinism to those cases which are due to the loss of function of the thyroid gland, whether it be due to congenital changes or progressive atrophy of its tissue.

A condensed history (intended more as a resumé of what has been done in this field), of the origin and observation of these cases, may not come amiss here, as it has not only led up to the undeniably valuable and most beneficial contribution to our present knowledge of the disorder and the possibility of its eradication, but it has added materially to a more thorough recognition of the important and faithful rôle which the so-called ductless glands, particularly the thyroid, play in the economy of the system.

Dr. Guggenbuhl, of Zurich, Switzerland, in 1841, was the first to recognize the fact that some improvement of Cretins, both bodily and mentally, could be accomplished by close and careful attention to hygienic and sanitary surroundings; and he succeeded in founding a hospital to that end. No mention is made of other treatment, nor that he recognized the condition as other than one associated with Goitre, with which, in some indefinable way, the disease is allied. Later, in 1850, Curling observed that "Of endemic Cretins it may be said that two-thirds are Goitrous, and of the remaining third that there is kinship with some goitrous, even though non-cretinous person" (1). In 1873 Sir William Gull (2) commented upon a Myxœdematous state occurring in women, but for which no explanations were offered;

1. Wolfstein, *American Journal of Medical Sciences*, March, 1898.

2. *Transactions of the Clinical Society*, London.



and in 1877 Ord (3) found by chemical examination of the subcutaneous tissues in these cases that an excess of mucin was the cause of the œdematous swelling, for which he proposed the name of Myxœdema.

From that time up to as late as 1885 no further research of much practical value was made on this subject, until Horsley (1) again revived interest in it. Soon after, in 1888, Hun and Prudden (2) published their report of two autopsies, and at nearly the same time the Committee on Myxœdema, of the London Clinical Society, published their report. These observations which will be spoken of later, shed considerable new light upon the pathological anatomy of Myxœdema. Horsley again, in 1890 (3), made great advancement in the suggestion based upon the experiments of Schiff and Von Eiselsberg (4), that as transplanting of a healthy thyroid gland from one animal to another could be done with some degree of success, it could be done in the human subject. This method was successfully carried out by Bircher (5) and by Bettencourt and Serrano (6) in 1890. These experiments of Schiff and Von Eiselsberg were performed on animals, and though they demonstrated that transplanting could be done with some degree of success, they failed in the practical application as a remedial agent in artificially produced Cretinism. Of the nine animals used in their experiments eight died of typical symptoms of the loss of the thyroid gland. At the post-mortem examination it was shown that the transplanted gland had not healed *in situ*, but that there had been complete necrosis of the gland substance. The ninth, however, had become vascularized, and, as far as could be observed, was performing its function naturally. The gland in these cases was placed in the mesentery or sub-peritoneal tissue. In four others the transplanted gland was placed between the fascia transversalis and the peritoneum. Three of these failed, owing to the necrosis of the graft, and the fourth was found still vascular and active. Horsley (1) has shown that the thyroid gland of the sheep resembles very closely in anatomical characteristics that of man.

3. Transaction of the Medical and Chirurgical Society.
1. British Medical Journal, January 17th and 31st, 1885.
2. American Journal of Medical Sciences, August, 1888.
3. British Medical Journal, February 8th, 1890.
4. Ueber Tetanie in Anschlusse an Kropf—Operationem, 1890.
5. Sammlung Klinischer Vortrage, No. 357.
6. La Semaine Medicale, August 13th, 1890.
1. British Medical and Surgical Journal.

and furthermore, that sheep, of all animals, resemble man most in the duration and character of symptoms after thyroidectomy.

In October, 1891, Dr. McPherson (2) transplanted a sheep's thyroid into a patient. In twelve hours there was very marked "mental improvement." Later in a paper written upon the subject (3), Dr. McPherson concurs in the opinion expressed by Drs. G. R. Murray and Fenwick that the sudden change could not be due to the engrafted thyroid itself, but to the absorption of the secretion which remained in the gland.

The first practical application that was ever really made of thyroidal treatment was that of Dr. G. R. Murray, of Newcastle, England, in 1891. In the *London Lancet* of March 11th, 1899, he reviews the subject of Myxoedema and Thyroidal treatment in a most thorough and admirable manner. His investigations into the administration of thyroid extract were based upon the practice of supplying any deficiency in the secretion of the glands of the stomach by means of an acid glycerine extract of the peptic glands. To him this suggested "That a much simpler method of maintaining the necessary supply of thyroid secretion would be the continued internal administration of the secretion itself." With this form of thyroidal medication he treated both man and animals, and proved conclusively that it was the one and only efficient method.

Howitz (1), Fox (2) and Mackenzie (3) demonstrated independently that the administration was equally as effectual by the mouth, and this method is the one which has been in constant use since these experiments were made.

Reverdin was the first to make note of the peculiar effect produced by the ablation of the thyroid gland in surgical operations; and Kocher in 1883 also described this operative sequel. Following Horsley's experiments upon animals, Semon was led to reason that it was the entire loss of this organ which was always responsible for Myxoedema (1).

Various other experiments have been made since upon somewhat different lines, notably those of Ord (2), Napier (3) and

2. *Edinburgh Medical Journal*, May, 1892.

3. *Ibid.*

1. *Ugeskrift for Laeger* Nos. 7 and 8, 1892.

2. *British Medical and Surgical Journal*, October 29th, 1892.

3. *Ibid.*

1. *Wolfstein Journal of Medical Science*, March, 1898.

2. *British Medical and Surgical Journal*, July 29th, 1893.

3. *London Lancet*, September 30th, 1893.

Vermehren (4) upon the excretion of nitrogenous products in the form of urea as a result of thyroidal treatment; also the disclosure of the exact function of the thyroid gland has been the experimental endeavor of many able investigators; and individual research has added many more results of value to our store of knowledge regarding these cases.

It is interesting also to note that an attempt has been made to associate Graves's and Basedow's diseases with some structural change in the thyroid gland, as well as with Ex-ophthalmic Goitre. Greenfield (1) has shown that in Graves's disease there is a certain change in the histological structure of the gland, and the secretion has no longer its colloid consistency. Wolfstein (2) says: "Personally I venture to assert that the relationship existing between Graves's disease and some toxic activity of the thyroid secretion is a fact too evident to be lightly thrust aside."

Of the real function of the thyroid gland nothing positive is known. By some the functional activity of the gland is supposed to be that of Hæmatopoiesis: for Horsley observed very marked anæmia in his experimental ablation of the thyroid gland in animals, and anæmia is a marked feature of the clinical appearances of these cases. Certain it is that mal-nutrition and lowered metabolism are nowhere more evident than in Myxœdema. Mendel (3) thinks that the functional activity of the gland is associated with the secretion of a substance which prevents the formation, or neutralizes certain toxins; and the administration of thyroidal extracts performs this function as naturally as the gland would in its normal condition.

Not so very long ago the functional activity, physiologically considered, was defined as that of excretory, rather than secretory. The excretion, as a result of this glandular activity, was supposed to be a mucinoid substance, the retention of which led to an accumulation within the body of the so-called mucinous exudate, giving rise to the production of the sub-cutaneous swelling so characteristic in the disease known as Myxœdema. However, further investigation has demonstrated that the colloid substance is a true secretion which does not contain mucin. The composition of the secretion is still a disputed question; but at the same time, several very important constituents have been

4. Deutsche Medicin Wochenschrift, October 26th, 1893.
1. British Medical Journal, 1896.
2. American Journal of Medical Sciences, March, 1898.
3. Deutsche Medicin Wochenschrift, p. 101, 1895.

separated and studied chemically and microscopically. Notkin(1) isolated a proteid substance from the gland, which he regarded as an active constituent, and which he called Thyreo-proteid. Gourlay (2) found that a nucleo-proteid was the only proteid to be gotten from thyroïdal secretion in anything like a definite amount. Furthermore, he found that this nucleo-proteid contained phosphorous, which by analysis has been shown to be about 0.32 per cent. Still another important discovery was made by Baumann and Roos (3) that this colloid secretion contains iodine in an organic combination which proteo-iodate they called thyreo-iodine or thyro-iodine. By analysis this proteid gave 9.3 per cent of iodine and 0.56 per cent of phosphorous. Hutchinson (1) has found that this secretion contains two proteids, a nucleo-albumen which is to be found in the epithelial cells of the gland, and also a colloid material which fills the acini. This combined secretion of the gland is separated by digestion with the gastric juices into two materials, one of which is proteid and contains only a small amount of iodine, and is practically physiologically inactive; the other is non-proteid, and combines all the phosphorous of the original colloid with a greater percentage of the iodine. This non-proteid substance, in his judgment, is the more active in removing the symptoms due to the loss of the thyroïdal secretion than the albuminous constituent. Frankel (2) succeeded in isolating a crystalline substance from the gland, which had the formula  $C_8 H_{11} N_3 O_5$ . This he called Thyreo-antitoxin. Whether this principle is endowed with torily demonstrated. Apparently the secretion of the thyroid gland is a complex one, and it has not been completely demonstrated that its remarkable properties are due to one or more than one of its several component principles. The colloid substance, as a result of the glandular activity, finds its origin in the epithelial cells which line the alveoli. Hurthle has shown by experiments that this secretion may be formed by the epithelial cells in two ways: that is, the colloid may be formed either in the cells, and then gradually extruded into the lumen of the alveolus, or whole cells may break down and be discharged into the colloid substance, a part of which they thus help to form.

1. Semaine Medicale, April 3rd, 1895.
2. Journal of Physiology, vol. 16, p. 23, 1894.
3. Zeitschrift für Physiologische Chemie, Band XXL., p. 481, 1896.
1. Journal of Physiology, Vol. XX., p. 474, 1896.
2. Wiener Medicinische Blätter, p. 48, 1895.

These broken down cells are succeeded by the reserve cells; while in the first method, that in which the cell itself forms the substance, the secretory function still continues. Whether both of these processes go on together in normal secretion is doubtful. In the dissection of a gland it is found that a large amount of secretion is stored within the alveoli, indicating that it is not entirely discharged as soon as it is formed, but that the alveolus acts as a reservoir (1).

. As the thyroid gland, physiologically considered, is ductless, it is evident that the escape of its secretion must either take place through the agency of the lymphatics or the veins; and the evidence which is possessed at the present time points to the former.

*Etiology.*—In the consideration of etiological factors various causes have been thought to operate in the production of Cretinism, among which are heredity, consanguinity, dipsomania, syphilis, unhygienic and unsanitary surroundings, such as impure water, soil, etc., and also climatic conditions, added to which must also be mentioned the goitrous diathesis. With the exception possibly of the goitrous diathesis, however, but little is known of the really practically predisposing causes. Dr. Starr says: "It is generally agreed that there is a direct causal connection between certain qualities of the drinking water in those regions where Cretinism and Goitre are common and these diseases, but the exact quality of the water which produces this disease is not determined." (1)

In adult cases of Myxœdema a history of some protracted drain upon the health and strength of the individual produced by severe hemorrhage, prolonged emesis as from sea-sickness, intense mental anxiety, frequency of pregnancy, or the violent and prolonged vomiting of pregnancy, may all act as predisposing causes. In addition the family history may show tubercular or neuropathic diatheses in immediate relatives or ancestors.

*Pathology.*—Hun and Prudden at their autopsies found essentially the following pathological conditions: There was separation of the superficial layers of the dermis or corium, with atrophy of the hair follicles. In addition there was obliteration of the lumen of the sweat glands and of sebaceous glands. Of the heart there was hypertrophy of the left ventricle, and also interstitial myocarditis (London Clinical Society); of the nervous

1. Murray, London Lancet, March 11th, 1899.

1. American System of Practical Medicine, p. 693.

system, chronic diffuse neuritis; of the kidneys, chronic nephritis. Interstitial changes occur also in the liver, the sub-maxillary gland, and in the adrenals. The blood showed a diminished number of red corpuscles; white corpuscles nearly normal; hæmoglobin diminished in percentage. There was obliterating endarteritis with atheromatous, and in places amyloid degeneration. It must be borne in mind that Myxœdema occurring in adult life, and that occurring in infantile or child life are essentially the same in structural changes, although these changes are more progressive as the age advances.

*Diagnosis.*—At the present time, when so much has been written and read upon the subject, the diagnosis is comparatively easy; for in no other disease are there the same features as presented in a well defined, or in even a poorly drawn picture of a case of Cretinism; and if any doubts present themselves as to the exact condition of the little patient, persistence in some form of thyroidal medication will disperse them in a matter of a few weeks. It may occur in children at all ages, and the clinical picture presented becomes more and more distinct as the age of the child progresses, reaching its maximum portrayal for diagnostic purposes at almost any period of its existence as a child,—assuming that child-life is estimated variously as from the third or fourth to the twelfth or thirteenth year. The symptoms of arrested growth usually present themselves about the sixth month, when it is noticed that the development physically and mentally does not progress as rapidly as it ought to. The child remains stunted in its growth, and a noticeable feature is that it is growing fat and puffy all over its body; the skin is apparently swollen, in other words œdematous, and lies in folds on the forehead, face and neck, producing a puffiness about the eyes which nearly obliterates them. In fact all over the body it is thrown into thick folds or rugae, and is dry and often scaly, usually mottled, of a purplish tint, and is cold and clammy. The supra-clavicular folds may be and usually are present, but not always. Fatty tumors may be found in the lower abdominal region. The expression of the face is vacuous, and if any interest whatever is evinced in passing objects, it is but momentary. The whole existence is one of apathy and indifference. The hair does not grow properly upon the head; and if it does at all, it falls out very soon, or remains coarse and dry. As the child nears the age of puberty the hair in the axillæ and over the genitals does

not appear. The abdomen is pendulous, and there is usually umbilical hernia. The lower lip also is pendulous, and the tongue is thick and protrudes almost constantly between the lips, as if there were not room for it in the mouth. The teeth are long in presenting themselves, and decay in a very short time. There is marked curvature of the spine, sometimes lateral, though lordosis is the rule, and the child, if it stands at all, is either bow-legged or knock-kneed. Muscular strength seems to be entirely wanting, and the child is incapable of any coördination of movement, and will fall in almost any direction if allowed to sit or stand alone, showing absence of intelligent government of its body. The head and chin are usually thrown forward upon the chest. There is no attempt at articulation, although they make guttural sounds which are expressed definitely as a grunt. They are unable to swallow anything but liquids, and then only after very much effort, which is due to the swollen tongue and fauces. The heart sounds are usually muffled, because of the density of the skin, and the lack of muscular tonicity in the heart tissue, which makes it impossible to get an accurate pulse count. There is usually intestinal inertia, creating an obstinate constipation, or there may be almost constant diarrhoea. The urine is always of a low specific gravity, usually acid, contains traces of albumen and a diminished amount of urea. If the disease has progressed over a considerable period hyaline and granular casts may be found in the urine. The odor is of a characteristic, strongly ammoniacal and putrid quality. The fæces are usually light colored, and contain considerable mucus. There is always sub-normal temperature, and these cases are always benefitted by warm climates.

Of the differential diagnosis there is very little to be said; there is only one other disease which can possibly confuse one in the matter of diagnosis, and that is chronic Bright's disease. But chronic Bright's disease occurs only in the adult, and that only after many years' standing; so that in children this disorder can be definitely excluded. In both Myxœdema and Bright's disease there is the general œdema, the feeble heart and the general weakness; and the examination of the urine gives a diminished quantity and a low specific gravity, with small percentage of urea and albumen, with the hyaline and granular casts. The œdema in Myxœdema does not pit on pressure, and it is always of a more general distribution, while that of Bright's disease gravitates to the most dependent portions, and pits very definitely upon pres-

sure. Cretinism has been mistaken for Rhachitis, but rachitic children present other symptoms which are not likely to be confounded with the symptoms of Cretinism.

*Treatment.*—The treatment of Cretinism may be inferred without very much additional comment. The system must be supplied with a rational substance of vital importance to the healthy metabolism of the system, and to that end various methods have been employed. Murray divides the treatment into two stages: first, the removal of the myxœdematous condition; and secondly, the maintenance of the healthy condition. In his first cases the treatment was with the glycerine extract given hypodermically. Howitz, Fox and Mackenzie gave the raw thyroid gland minced, in Fox's case followed by the extract. Within a few years various powders, tablets, extracts and tabloids have been placed upon the market, and they all have their usefulness, both as to economy and convenience of administration. The treatment by engrafting has been abandoned because of its uncertainty. Of the various preparations made, Fairchild's tabloids, Armour's capsules, Park, Davis & Co.'s tablets, Burroughs, Wellcome & Co's. (London) tablets, all of which are of the relative strength of 5 gr. each, are the ones in general use.

In the case to be reported, as far as my own attendance has been concerned, the raw thyroid gland has been the favored mode of medication. For a convenient form of reference it may be said that a quarter of a lobe of a medium sized gland is equivalent to ten grains of the extract. The glands in use have, in nearly every case, been taken from sheep slaughtered while I was present, which might be called, practically, living. In no case have they been more than a few hours old. They are placed in an aseptic glass jar, and dissected intact from the trachea, which I have had removed, that the butcher's knife might not cut the gland itself. Within an hour they have been cleaned and cut up under antiseptic precautions, and placed in sterile glass jars upon ice. In this way a gland may be kept four or five days in good condition in cool weather. In warm weather it is necessary to get glands oftener, that they may be given in a comparatively fresh state. Careful examination has been made in every case for evidence of disease in the glands, and anything suggestive of new growths or disease has resulted in their rejection.

The case to be discussed tonight belonged originally to Dr. George



Crary, of New York, and was reported by him in an article in the American Journal of Medical Sciences, May, 1894. I shall quote the family history, with but few exceptions, from his article. The little patient was born in Brookline, October 29th, 1888, amid surroundings of refinement and culture, with no history of thyroid disease in the family of either parent. The paternal grandmother died of cancer in the breast, with also a definite phthisical history; grandfather died of Bright's disease. On the maternal side grandfather died of Apoplexy; grandmother still living, sixty-eight years old, apparently healthy. There is no tendency to a tubercular disease in either parent. One aunt on the mother's side died of Consumption; others of contemporary relationship have died of Apoplexy. Venereal disease of any sort can be very definitely excluded. The mother has been a partial invalid from neurasthenia for some years, both before and since marriage. She has had an irritable and rapid heart, and has been somewhat anæmic; is of slight build, and easily exhausted. The eyes are large, but ex-ophthalmia is not present, neither is there any tendency toward Goitre, although the throat is somewhat full. During her pregnancy, the first and only one, she was ill for five weeks with tonsillitis at about the third month; and during the second month the third rib on the right side was broken by accident. Morning sickness persisted throughout the entire pregnancy. The delivery was instrumental, and under ether anæsthesia, and the cord was wound twice around the neck.

The child weighed 8 pounds, and nothing abnormal was noted in action or appearance. At four months she began to be fretful at night, and suffered from attacks of spasmodic dyspnoea. There was nothing of any unusual appearance until the child was six months old. Then the tongue seemed thicker than natural, and the baby was pronounced tongue-tied. She ceased to grow, was losing in weight, and there was a state of obstinate constipation. The loss of weight was attributed to the nursing of the child by the mother, who was not at all strong. At eight months it was recognized that the child was far from normal, for the swelling of the face, the protrusion of the large and swollen tongue, and the lack of mental and physical development were unhappily evident to everyone. At eleven months the child was weaned, and the inability to swallow even liquids was so marked as to necessitate feeding with a dropper. For three months she was fed en-



Just before treatment by Dr. Crary.  
Nearly 5 years old.



After 4 years' treatment. Age 9.  
2 months before taken by Dr. Pillsbury.



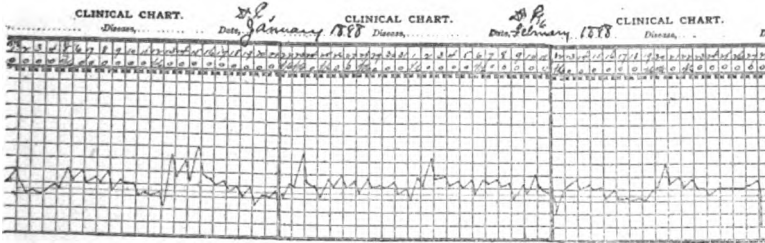
tirely upon goats' milk; then a trial was made of all the various infant foods then upon the market. At two years the two lower incisors appeared, but they were small and soon discolored. At three years the general swelling was at its worst, and a diagnosis of Rhachitis was made, and she was treated for this for a period of about nine months. At the fourth year epileptiform convulsions were frequent, some days there being as many as a dozen. At four years and ten months the child came under the observation of Dr. G. F. Merrill, of Kennebunkport, Maine, for cholera infantum, which nearly resulted fatally; and then for the first time the condition was recognized by him, from the appearances of the child, as Myxædema. Dr. Crary, who was stopping at the same place, was asked to see the little patient. The condition, both mental and physical, was one perfectly characteristic of the disease. Though nearly five years old, the child was of the size of a ten months' old infant. The lordosis and the large pendulous abdomen were especially marked, and there was bowing of the tibiæ in the lower third. The swelling of the face, nearly closing the eyes, the marked mental apathy and the protrusion of the tongue, gave the face the appearance of absolute intellectual vacuity. The condition of the skin was typical of the disease, but the hair on the head was thick, though coarse, and it was also present upon the forehead and sides of the face. There was considerable anæmia present, and the axillary temperature ranged between 97 and 98 degrees. Upon close examination it was found that some degree of intelligence was certainly present, though the power of perception was slow. It required some patience to attract her attention, and a lighted match moved in front of her eyes did not meet with any interest. Only loud noises would cause any response, and these she seemed unable to locate. No expression of face or body would indicate any interest whatever in surroundings. There was total inability to maintain equilibrium in any position, and she would topple over without any effort to save herself from possible consequences. Upon September 1st, 1893, the treatment with extract of lamb's thyroids, grs. xxiv. to the drachm was begun, with an initial dose of 1 drop t. i. d. This was gradually increased until four drops were given, and the temperature rose to 99 degrees. Within a week a letter from Dr. Merrill to Dr. Crary, stated that a change for the better was manifest; and on September 27th the child was taken to New York, to remain under Dr. Crary's observation.

At that time 5 drops t. i. d. were being taken, and the temperature remained at normal. The swelling of the face and body was much reduced, the lips less prominent, and the tongue smaller, more moveable, and could be kept within the lips, but not within the closed jaws. The skin was much softer, and not so dry. She was certainly brighter, and looked up into the face of anyone approaching, and when her name was spoken would turn her head in the direction of the voice. The improvement continued steadily, both bodily and mentally, and while the child remained under Dr. Crary's oversight, the manifestations of the disease slowly but surely lessened. In April, 1894, the parents returned with the child to Brookline. Dr. Crary, as far as he was able by letter and by occasional visits, continued the treatment up to the fall of 1897. There had been some changes in the methods of thyroidal administration. The glycerine extract which he used in his treatment of the cases he had under his care, was made entirely by himself from the fresh sheep's glands, but feeling uncertain as to its absolute inefficiency, he discontinued its manufacture, and in July, 1894, he changed to the 5 gr. tablets, one-half tablet given every third day, increasing the dose later to a half tablet every other day, and so on, as rapidly as could be borne without detrimental effect upon the patient, so that in February, 1896, she was taking two tablets per day, or 10 grs. of the manufactured extract of thyroid. Later, in May, there was still another change to thyroid powder of 3 grs. t. i. d., which, however, was productive of all the symptoms of an overdose; as he expresses it, of "Rheumatism in every joint and muscle and bone of her body," with partial paralysis, hysteria and convulsions. After this the dosage was lowered to 1 gr. t. i. d. Then there was still another change from powders to tablets until October, 1897. In July, 1897, an abscess appeared back of the left ear, which, however, was not of mastoid origin, as I have since ascertained.

My own personal connection with this case dates from October, 1897, to the present time. As far as I could see, there was a very evident stasis in the condition of the child, if not actual retrogression; and this, in my humble judgment, was not due in any way to lapse of treatment, but rather to an unwillingness on the part of the parents to force the dose to its maximum tolerance in the absence of the attending physician. There was the same general swelling, sub-normal temperature, dry, scaly, mottled skin,

the protruding tongue, pendulous lip and abdomen, lordosis, and inability in the coördination of muscular movement. During the early stages of Dr. Crary's treatment there had been a marked mental improvement, but it was evident that with the stasis of bodily improvement the mental development had suffered too.

It was Dr. Crary's opinion and mine that the raw thyroid glands would be more productive of definite results than any of the preparations which are in use, and I entered upon this newer line of treatment with the added hopefulness of Dr. Crary, who had become somewhat discouraged at the almost imperceptible progress which had been made in the last months. During the first few months of my attendance fresh glands were gotten at the abattoir as often as three times a week; and the infinitesimal dose of 1-32 of a small lobe was given as the initial dose, which is equivalent to  $\frac{1}{2}$  gr. of the real thyroid principle. This was gradually increased to 1-16 three times a week. Even with this small dose there were evident rheumatoid pains, hysteria and spasms. The little patient did not sleep at all well, and there was a rise

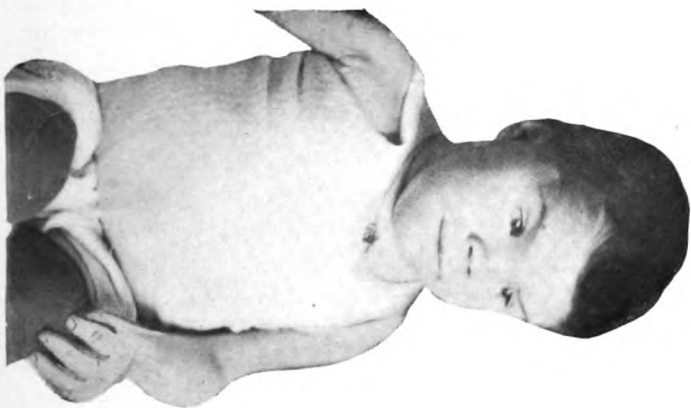


SPECIMEN TEMPERATURE CHART.

in temperature which did not at any time return to normal. At the same time the symptoms gradually began to disappear. There was greater interest shown in surroundings, and more of a tendency to play with objects about her. In addition, motor function gradually began to demonstrate itself in a tendency to grasp objects, and there was a very definite sense of locality. All this was during a period of about four months, and with occasional symptoms of rheumatism and an acceleration of the heart's action, diarrhoea and insomnia, the treatment was being borne well. These symptoms were treated separately with salol, bismuth and bi-carbonate of soda, and various hypnotics for the insomnia. In all my experience with this case, at no time have I found it necessary to administer drugs for their action upon the heart. It may

be said that the cessation of treatment entirely for a short time has been sufficient rest for the heart. Gradually, as tolerance was shown, the dosage was increased to 1-8 of a lobe, and up to the beginning of last summer this was the dosage maintained. During the summer it was practically impossible to keep the glands in a fresh state for even a day, that they might be sent down to the sea-shore, to which the patient had been taken for the season. There seemed to be nothing to do but to resort to some form of the extract. The powders, having proved more efficacious though in a detrimental way, were chosen to maintain the supply until the glands could be used again. Upon the return of the patient in September renewal of the treatment by the glands was begun. The dose of 1-8 of a lobe prevailed for a short time; the  $\frac{1}{4}$  was attempted, which was found to be borne without any serious disturbance to the system. When absolute tolerance of  $\frac{1}{4}$  was reached,  $\frac{1}{2}$  became the dose, or 8 grs. of true thyroid which is the one in use today. The administration is continued for five days regularly, and there seems to be no reason to believe that it is harmful in any way. When I have been unable to get the glands, which has been more frequent than I could wish, Fairchild's tablets have been given, in order that the regularity of thyroidal supply might not be interrupted.

The symptoms of the myxœdematous condition are being almost entirely lost sight of in the added condition of marked mental and bodily improvement. The œdematous swelling has almost wholly disappeared; there is a very evident growth of the skeleton; with marked emaciation in the tissues. The head has assumed a more natural contour, and the skin has almost entirely lost its mottled appearance, and is warm; the sweat glands are performing their function naturally. The bowels still remain in a condition of inertia, necessitating either enemata or suppositories. The teeth have received considerable attention, for which I am indebted to Dr. Francis H. Barnard, Jr., and it was during this attention that the idea of the combined use of iodine with the raw thyroid first occurred to me, based upon the theory of Baumann that iodine is one of the active principles of the gland. This was in November, 1898. At first the tincture was used, and was allowed to absorb through the gums and mucous membranes of the mouth, at the same time acting as a cleaning agent to the teeth. For its pernicious effect upon the digestive apparatus it had to be discontinued, and the syrup of hydriodic



3 months after taken, Dr. Pillsbury.  
 9  $\frac{1}{2}$  years old.



As it is after 18 months' treatment by Dr. Pillsbury.  
 Age 10  $\frac{1}{2}$  years.





acid (Gardner) was substituted. This has been given since December, in doses of a teaspoonful t. i. d. To the iodine in conjunction with the raw thyroid I have attributed the remarkable mental and bodily improvement during the last five months. It may be said in passing, if I remember rightly, that this hydriodic acid contains about 9 per cent of iodine to the dose.

As a result of the increased activity of the system and mind there is a very evident attempt made at walking, and this has been encouraged as seemed consistent with the muscular development of the limbs and back. As yet she does not maintain her balance in sitting or standing for any length of time, but if placed against a chair or table or wall she will stand alone for a considerable length of time. Objects, especially candy, are grasped between the thumb and forefinger without hesitation, and she is developing a very decided will of her own, which finds its expression in perfectly natural ebullitions of temper, which is one of the most marked improvements shown. There is also a decided preference for certain persons, objects and places, which she expresses in a very evident manner. It is safe to assume that within a short time an attempt will be made at articulation, no effort as yet having been made to teach her to talk. The laughter is becoming more and more natural, as are also the other sounds common to children. Among other signs of systemic and mental improvement are the almost entire correction of the curvature of the spine; the length of limb has increased and the size of the body diminished, until they are now of almost normal proportions. The tongue is kept within the jaws, and deglutition is performed naturally. The sixth year upper molar came through about a month ago without any apparent disturbance to her health. Another gratifying feature is the fact that, although she contracted whooping cough just before being taken away last summer, it in no way resulted unfavorably.

The following comparative measurements will show the increase in the growth of the skeleton and the general diminution in the bulk of the body.

<i>Circumferences.</i>	April 25, '98. Inches.	April 23, '99. Inches.
Occipito-mental .....	16½	17
Horizontal .....	20	20
Face .....	19	21½
Neck .....	12½	11
Right arm.....	6½	6
Left arm.....	6½	6

<i>Circumferences.</i>	April 25, '98. Inches.	April 23, '99. Inches.
Right forearm.....	6½	5¾
Left forearm.....	6½	5¾
Right thigh.....	10½	10
Left thigh.....	10½	10
Right leg.....	8	7½
Left leg.....	8	7½
Upper chest.....	23	23
Lower chest.....	23½	23
Abdomen .....	21	22
<i>Lengths.</i>		
Right arm.....	6¼	6
Left arm.....	6*	6
Right forearm.....	5	5
Left forearm.....	5	5
Axilla to heel.....	25	27
Anterior superior spine to malleolus.....	13½	15
Occipital protuberance to heel.....	29	32
Weight March 1st, 1899.....		28 lbs.
*Old fracture.		

There remains very little to be added beyond the fact that the most obstinate cases of Cretinism, extending even over a number of years, seem to be amenable to treatment, if persisted in with either one form or another of thyroidal medication. What may be done in the future with an iodine combination remains to be seen. In this case the two have worked harmoniously, which promises well for future reference. I am indebted to Dr. R. W. Hastings, of Brookline, for a trial of the iodine with thyroid tablets, in a case he has under observation, and upon which he has very kindly reported favorably. For the innumerable courtesies of Dr. Crary, I am also under the deepest obligation.

Since this article was written I have added Nuclein (made by a Chicago firm) to the treatment of this case. This, however, is more or less experimental. If any additional benefit is to be derived from it I presume it will be more or less obscure. With even half a tablet or one drop per day the temperature ranges from 103 to 104.5 degrees.

36 Cypress Street, Brookline, Mass.

ACASE OF TRAUMATIC NEURITIS WITH COMPLETE  
MONOPLÉGIA OF THE RIGHT FOREARM.  
OPERATION. IMPROVEMENT.\*

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The following case was referred by Dr. Wm. Ekwurzel, of Frankford, Pa., to Dr. C. H. Frazier at the Howard Hospital on April 5th, 1898:—

C. R., age 14 years, male, American, with a totally helpless right forearm. Gave the history that the right arm had been drawn into a pulley-belt in a mill on February 12th, 1898, and had sustained simple fractures of the humerus, radius and ulna, with much contusion and ecchymoses in the soft parts, due to the pressure borne by the member being drawn into the pulley-wheel. The arm had been placed upon splints, and it did very well as to bone union for so serious a contusion and nerve injury accompanying the fractures. When the fracture dressing was readjusted from time to time, it was noted that motion of the right forearm and hand muscles did not reëstablish. There was ob-  
funding of sensation pretty generally throughout the sensory area of the right forearm, all the cutaneous nerves being involved.

After union of the bones had been finally effected, this continued sensomotor paralysis of the right forearm (and complete as to the latter) led to the surgical consultation. Massage was instituted and Dr. Frazier referred the case to the neurological department where, on April 23rd, 1898, an electrical examination was made to the determination of well marked reaction of degeneration in the muscles, supplied by the musculo-spiral nerve below the elbow; with a cold and cyanosed hand, sensation being much obtunded below the elbow crease as described, finger nails brittle, skin glazed, motion about nil. There was but little tenderness along the nerve trunks anywhere, but more so in the upper half of all the nerves of upper arm.

The boy could carry the arm well in all directions by the

\*Read before the Philadelphia Pediatric Society, March 14th, 1899.

shoulder girdle muscles, the forearm dropping quite flail-like in any position when made pendant; and he could just about move the fingers. There was some power in the biceps and triceps, however. The wrist was sub-luxated; it and the fingers were semi-flexed. There was thickening of the radius and ulna at about their upper thirds, and the humerus was bulged on the outer aspect just at the inferior end of its musculo-spiral groove.

The right forearm was also rather symmetrically wasted; there was fibrillary twitching elicited on tapping the atrophied muscles, while the upper arm and shoulder girdle muscles were somewhat wasted by enforced disuse, although the electrical reactions were normal here, and the elbow jerk and sensation were normal. The lack of power in the biceps and triceps was considered due to myositis. The boy was otherwise in excellent health. Galvanism was now instituted along with the massage. Within a fortnight the forearm could be flexed and extended, the myositis having subsided.

On May 7th, 1898, three months after the injury, there was little, if any, improvement noted in the forearm muscles after faithful treatment. The finger nails were still brittle and were apparently not growing at all, as shown by staining the bases with nitric acid. The forearm was in a bad trophic condition and the case looked serious, as to recovery of motion. We decided to see if surgical interference might avail, and on the last day of May, 1898, Dr. Frazier exposed the musculo-spiral nerve for 2 inches over the bulbous humerus, and while he did not find callus pressure, determined the musculo-spiral nerve contused, softened and almost severed for a distance of two inches; there being about half the size of the normal nerve remaining intact. Nerve suture was not done for fear of ascending and descending degeneration having taken place enough to endanger the already much lowered trophic condition of the right forearm; for the ulnar, median and branches were all involved in the compression. Indeed, how nutrition took place with so great a nerve path cut off, was the wonder of us all. The wound was sutured, with the satisfaction of knowing that motion and trophic influence was not made worse in the already serious condition, and with the elimination of a possible existing source of pressure, this mashing having been done at the time of the accident undoubtedly.

The ulnar nerve was exposed, but found not to be pressed upon then. Both wounds healed kindly. We concluded to continue

faithfully massage and galvanism, which was kept up during the entire summer of 1898. To this was added in July a hot soap suds bath in the evening, and it was enjoined to keep the arm elevated at least above a pendant position to favor circulation. Out-door life was also encouraged, with careful avoiding of injury to the forearm. By the end of June, 1898, finger movements began and were of steadily greater excursion from week to week, but the dynamometer did not register, nor could the forearm muscles be moved perceptibly. Sensation to touch was more acute everywhere by this time. On July 9th the grasp was R. 0; L. 60. There was still slight qualitative change and great quantitative diminution in the right musculo-spiral distribution, less so in the median distribution, none in the ulnar distribution. Sensation to touch, temperature and pain were much improved. On October 4th, 1898, there was full electrical reactions and the forearm muscle movements were much improved, sensation being quite normal. Flexion and extension of forearm through the triceps and biceps almost equalled that of the left side. The finger movements were limited more by binding down of the flexor and extensor tendons with firm exudate at the subluxated and flexed wrist apparently than by the muscle palsy. The use of flat-iron gymnastics was now added to systematic régime continued for over five months. On February 20th, 1899, the patient could write his name easily and could use the forearm in all movements well. The case promises to go on to complete regeneration of the musculo-spiral nerve distribution, while the other nerves are quite normal.

**CONCLUSIONS:** Compression neuritis from pressure and fracture, as revealed by electrical examination and operation; regeneration of the distal portions of the affected musculo-spiral, median and radial nerves; almost complete recovery one year after injury was sustained.

The case is worthy of record from a point of prognosis and treatment, and teaches the lesson of continued use of massage and galvanism in such injuries, even when three to five months have elapsed, after the injury.

The writer reported a case before the Philadelphia Neurological Society, April 26th, 1897, where operation and nerve union in a completely severed median nerve effected a cure, and Sinkler in *The Therapeutic Gazette* for July, 1895, reports a case of union after secondary suture three months after operation.

The wonderful power of regeneration in nerve trunks is here again emphasized, as is well known to exist in an undesirable fashion in cases of resection of the branches of the fifth nerve removed for painful tic. I have seen entire regeneration of the superior and inferior maxillary nerves in tic douloureux.

I have to thank Dr. J. Madison Taylor for the courtesy in permitting me to report the above case.

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## A CONSIDERATION OF PARENCHYMATOUS INFLAMMATIONS OF THE MOUTH AND TONGUE.

J. L. GOODALE, M.D.

UNTIL quite recently the nature of many deep-seated inflammations of the mouth and tongue was involved in confusion and obscurity. This was largely owing to the lack of definite bacteriological information, and the consequent difficulty in correctly interpreting clinical phenomena.

Thus, in 1885, Butlin divided parenchymatous inflammations of the tongue into (a) catarrhal glossitis, possibly due to catching cold or to reflex irritation of the lingual branch of the fifth nerve (b) hemiglossitis, a similar condition limited to one half of the tongue, (c) septic glossitis perhaps due to anthrax, (d) mercurial glossitis, (e) glossitis from bites and stings and (f) inflammation at the root of the tongue.

Schech, in 1892, follows essentially the same classification. Both these accounts fail to take into account the special relation of bacteria to inflammatory processes, and also give but scant mention of the rôle played by the lingual tonsil as an entrance point for infection. From an examination of cases recently recorded as well as of several that have come under the writer's observation, it appears possible to arrange the conditions under consideration with regard to their etiology and pathology with a greater degree of exactness than has hitherto been done.

Pathological examination has in the first place shown that a certain class of cases are due to infection by the streptococcus pyogenes or by the bacillus of diphtheria, which would formerly have been called catarrhal glossitis.

Another form of inflammation generally resulting in abscess formation is known now to arise from infection by pyogenic bacteria, notably staphylococci of various kinds.

Again a form of glossitis formerly reckoned among the catarrhal conditions can now be classed more naturally as a form of nervous disturbance akin both to angioneurotic oedema, and to herpes.

Finally, the inflammations at the base of the tongue can be better understood in the light of our advance in knowledge regarding corresponding inflammations of the faucial tonsils.

We therefore recognize the following divisions of our subject:

1. Parenchymatous inflammations from infection by streptococcus pyogenes.
2. Parenchymatous inflammation from infection by the bacillus of diphtheria.
3. Suppurations more or less local, from infection by staphylococci.
4. Oedematous swellings from vaso-motor disturbances.

Naturally, some of the older records of imperfectly investigated cases cannot at the present time be accurately placed in any system of classification. Such are the cases of glossitis from bites and stings of reptiles and insects, where it was not determined whether the inflammation was due to the venom or to the introduction of infectious micro-organisms. This statement applies also to some of the cases of reported anthrax infection and to instances of mercurial glossitis. There is a fruitful field here for investigation by scientific methods.

1. Acute parenchymatous inflammation of the mouth and tongue from streptococcus infection.

So far, the number of satisfactorily investigated cases of this condition is comparatively small. A case observed by the writer presented the following clinical and pathological phenomena: Male, 22, during the course of an acute nephritis was taken with soreness in the right tonsillar region, followed in a few hours by a swelling of the tongue, which rapidly increased till the organ became protruded from the mouth, threatening suffocation. An operation was done to relieve stenosis, without avail.

At the autopsy the tongue was removed, and showed the following conditions:

Inferior portions of muscles of tongue show gray to yellow streaks with some blackish discolorations. In the sublingual



muscles attached to the hyoid bone are also seen grayish and blackish red streaks, and in one situation, near the inferior border of the tongue, is an area about one centimeter in diameter, in which the muscle is softened into a reddish mass. There is no pus. Tonsils normal. Coverglass examination of tissues at base of tongue shows numerous micrococci, often in pairs, and some polynuclear leucocytes.

Cultures on blood serum were taken from the base of tongue (necrotic looking tissue): Very numerous, minute colonies composed of chain-cocci: *Streptococcus pyogenes*. Moderate number of golden yellow colonies of cocci: *Staphylococcus pyogenes aureus*. Blood of heart showed colonies of *streptococcus pyogenes*.

In another case a streptococcus infection of the tongue in the sublingual region followed fracture of the temporal bone. In this instance there were also acute otitis media and suppuration in the neighboring parotid region. The patient died from general sepsis. At the necropsy "the muscles of the tongue exhibited beneath, over a small area, opaque yellow streaks, cultures from which showed numerous colonies of *streptococcus pyogenes*, and a few of *staphylococcus pyogenes aureus*."

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(To be continued).

## RETROPHARYNGEAL ABSCESS AND RETROPHARYNGEAL ADENITIS.

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Translated from the French with the special sanction of the author

BY

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*History.*—Retropharyngeal abscess is still frequently designated by authors under the name of "phlegmonous angina" (Gautier, 1869); "suppurating retropharyngeal adenitis" (Rou-

stan, 1869); "circumscribed peripharyngeal phlegmon" and "retro and latero-pharyngeal adénophlegmon" (Ruault, 1892).

The physicians of antiquity and of the middle ages (Hippocrates, Ambrose Paré) were acquainted with retropharyngeal abscesses. Although writers of the commencement of our century have left us a certain number of clinical observations on this affection, yet the chief merit of having made retropharyngeal abscess a matter of exhaustive study belongs to C. Fleming (1), 1840, a physician in Dublin. The works of Bokay Senior (2), who applied himself to throwing light upon the nature of these abscesses, and who left a very conscientious monograph on the symptomatology and treatment, appeared in 1858 and in 1876. Among other works published before 1880, may be pointed out those of Gillette (3), 1869; of Roustan (4), 1869; of Gautier (5), 1869, and of Schmitz (6), 1874, all of which contain a very complete bibliographical study of this subject.

*Pathogeny and Etiology.*—In the classification of retropharyngeal abscesses, we distinguish the following groups:

1. Abscesses called idiopathic.
2. Secondary abscesses due to congestion arising from inflammation of the cervical vertebræ, or from the migration of pus from a superficial cervical adenitis.
3. Septic or metastatic abscesses.
4. Retropharyngeal abscesses of traumatic origin.

Although idiopathic abscesses are observed comparatively often, it may be said of secondary abscesses that they are rare, and of metastatic or traumatic abscesses that they are exceptional.

From 1854 to 1893, that is to say, in the space of 39 years, I have had under my care, in the hospital, 614 retropharyngeal abscesses, including the adenites. This number was observed in a total of 289,176 sick children; retropharyngeal abscess, including retropharyngeal adenitis, was observed then in 0.2 per cent of the patients who entered the hospital. (In the statistics of Neumann (1), of Berlin, retropharyngeal abscesses for 0.37 per cent of the total number of diseases.)

1. *Dubl. Journ. of Med. Sciences*, 1840-1850.
2. Bokay Sen. *Jahrb. f. Kinderheilk*, 1858 and 1876.
3. Gillette. *Des abcès rétropharyngiens idiopathiques*, Paris, 1867.
4. Roustan. *Des abcès rétropharyngiens idiopath. et de Padénite suppurée rétro-pharyng.* Thèse de Paris, 1869.
5. Gautier. *Des abcès rétropharyng. idiopath. ou de l'angine phlegmoneuse*, Genève et Bâle, 1869.
6. Schmitz. *Jahrb. f. Kinderheilk*, 1875.
1. *Arch. f. Kinderheilk*, Vol. XI.

In the study we are about to make, we shall have in view principally abscesses called idiopathic, and the retropharyngeal adenitis connected with them.

In 1876, Bokay Sr. expressed the opinion that *in every case* retropharyngeal abscess springs from a retropharyngeal adenitis, and that, in consequence, the inflammation of the lymphatic glands should be considered the preliminary stage of the idiopathic abscess. This source of idiopathic abscesses had already been admitted by Gillette, Gautier, Roustan, König and Schmitz, but these authors accepted the lymphadenitis rôle for certain cases only, while Bokay Sr., on the contrary, held that this etiology is valid for *every* case. According to him, it is the suppuration of the glands indicated by anatomists under the name of "deep lymphatic glands of the face" (gland. lymph. faciales profundæ) and "superior deep lymphatic glands of the neck" (gland. cervicales profundæ superiores), that gives birth to the retropharyngeal abscess; according to Henle, these glands are particularly abundant in children, and decrease later with age.

Clinical experience teaches us that retropharyngeal abscesses are as common among boys as among girls. With regard to age, retropharyngeal abscess and retropharyngeal adenitis are specially frequent between 2 months and 4 years; later, they are quite exceptional. Between 2 months and 4 years, the largest number of cases fall to the 4th, 5th, 6th, 7th, 8th and 12th months. These abscesses seem to appear oftener during winter, spring and autumn, than during the months of June, July and August, when they are much less common.

Authors are at variance as to the etiologic rôle played by the diseases called constitutional (scrofula, rachitis). Although Schmitz, Henoch (2), and, among modern writers, Neumann, do not think that the constitutional affections favor the development of retropharyngeal abscesses, Bokay Sr., Koths (3) and Baginsky (4), on the other hand, admit the existence of a close causal affinity between the constitutional maladies and adenitis or idiopathic retropharyngeal abscess. In reviewing 187 cases, personally observed in a hospital, I find in accordance with this opinion of Bokay Sr., a history of the constitutional maladies in a large number of cases (32 rachitic and 43 scrofulous children),

2. E. Honoch. Vorlesungen über Kinderkrankh. Berlin, 1892.

3. O. Koths. Gerhardt's Hdb. f. Kinderkrankh. Bd. IV.

4. A Baginsky. Lehrb. d. Kinderkrpakh. Berlin, 1892.

without speaking of the fact that in a large number of other observations insufficient general development, a bad condition of general nutrition, and a feeble constitution are often noted, so that the number of cases where the child presented a good state of general nutrition and satisfactory development is quite trifling.

Personally, I know of only one case in which the etiologic rôle of tuberculosis might be incriminated. In this case, observed in 1881, the child succumbed to a tubercular meningitis of the base about fifteen days after the opening of an idiopathic retropharyngeal abscess. As to the question of determining to what extent the tubercle bacillus is involved in the development of these abscesses, primitive or secondary, it is difficult to reply with precision on account of the very small number of facts which we possess.

The etiologic rôle of syphilis was pointed out in 1864 by Verneuil; König (1) mentions it among the occasional causes. Until 1876, Bokay Sr. had not seen a single syphilitic case among his observations, but in 1881 he (2) reports two cases of syphilitic origin under his charge in the hospital. In my personal observations, I found eight syphilitic children treated six times for simple inflammatory adenitis, and twice for suppurating retropharyngeal abscess.

The acute infectious maladies are the immediate cause less often than is generally supposed. The facts collated by Gautier, by Schmitz, and by Bokay Sr., as well as my personal cases, prove this sufficiently. To show how rare it is to see the acute infectious maladies, and especially the eruptive fevers, intervene as etiologic factor, suffice it to say that in my collective cases, before the development of retropharyngeal suppuration, scarlatina was observed only fourteen times, rubeola once, erysipelas twice, pertussis twice, parotitis once. I wish to particularly emphasize the fact that, since the existence of the hospital, and in spite of the considerable number of diphtheria patients who come here every year, only one case of retropharyngeal abscess as a sequence of laryngeal diphtheria has been seen; this case was observed during the past year.

By their afferent vessels, the post-pharyngeal lymphatic glands are brought into communication with the bucco-pharyngeal

1. König. Pitha-Billroth Handb. d. allg. u. spec. Chir. 111 Bd. 1 Abth. 4 Heft.

2. Alexy-Bokay Sen. Jahrb. f. Kinderheilk, 1880.

cavity, the nasal cavities, the ear, in a word, with all the cranial cavities, a circumstance which enables us to comprehend how a disease of these cavities may affect the condition of the lymphatic glands situated behind the pharynx.

Schmitz has attributed a special etiologic importance to nasopharyngeal catarrh and to inflammation of the pharynx, Weil to acute suppurative inflammations of the middle ear, Lewandowski (1) to rhinitis. Among etiologic causes, Bokay Sr. allowed a considerable place to febrile affections of the mouth, the pharynx, the nasal cavities, and of the middle ear. Personal experience confirms the etiologic value of otitis media, stomatitis, rhinitis and of acute pharyngitis, and leads to the belief that the frequency of the bucco-pharyngeal affections among children explains why idiopathic retropharyngeal abscesses are observed oftener among them than among adults and more frequently during autumn, winter and spring than in summer.

If then, we surround with neighbors the etiology of retropharyngeal abscesses, we may ask: Up to what point is one authorized today to designate them by the name "idiopathic" (Kormann, in 1877, protested against this term). Bokay Sr. in 1876, retained the term "idiopathic" for the purpose of separating these abscesses from the secondary suppurations; I think, however, that, without offending against the opinions of Bokay Sr., one may abandon the term "idiopathic" and designate the affection under the name of retropharyngeal abscesses from retropharyngeal lymphadenitis. This definition would have the advantage of separating them from the secondary abscesses metastatic and traumatic, and of permitting at the same time definite etiologic knowledge.

I must be brief on the etiology of metastatic and secondary abscesses.

Traumatic abscesses are produced as a sequence of the deglutition of foreign bodies, through mechanical action, and appear in the form of a diffuse inflammation of the connective tissue. Among hospital-treated retropharyngeal abscesses, I have observed only one case of this sort. The foreign body, a metallic pin, was swallowed and by its pointed extremity was fastened in the lower part of the lateral wall of the pharynx. Although the pin could have been extracted, the child died three days after the accident.

1. Lewandowsky. Berlin. klin. Wochenschr, 1882. No. 6.

Authors who have made bacteriologic examinations of the pus of retropharyngeal abscesses are not numerous. The researches of H. Koplik (2), New York, 1894, who studied bacteriologically a large number of acute retropharyngeal abscesses, can be summarized as follows: Koplik found in every case streptococci which developed upon the nutritive media under the form of a very abundant pure culture. In one case only, the streptococcus was associated with the bacillus lactis aërogenes, the latter coming probably from the mouth. Among the streptococci which he isolated, Koplik distinguishes four varieties: two short and two long. Short streptococcus A. of the pharynx formed little chains of 6, 8, 20 cocci, the diameter of each measuring 0.5 m. The chains of short streptococcus B. contain 20 to 40 cocci, each with a diameter of 0.7 m. Long streptococcus A., of the pharynx, formed very long chains, the cocci of which they were composed varying in diameter between 0.6 and 0.8 m. Long streptococcus B. appeared in extremely long interminable chains; each of the cocci which composed the chains had a diameter of 0.4 to 0.5 m. and seemed to divide transversely. These four varieties all colored well with Loeffler blue and by Gram's method.

In the adenitis of the neck, called idiopathic, which frequently accompanies idiopathic retropharyngeal abscesses, Neumann has detected the presence of *streptococcus pyogenes* and of *staphylococcus*.

*Pathological Anatomy.*—We have already briefly described the anatomical situation of the post-pharyngeal lymphatic glands. Idiopathic abscesses, which arise from suppuration of these glands, develop in the post-visceral spaces, and, following their extension, contract the isthmus of the fauces more or less. When they are deeply situated and present a considerable size, they may push the larynx and trachea forward or sideways, or even contract the latter beneath the cricoid cartilage (tracheal stenosis). In a feeble nursing, Bokay Sr. saw the abscess rupture into the larynx, and thus lead to the death of the child.

In abscesses from congestion, the pus may pass under the cricoid cartilage, follow the inferior thyroid artery, penetrate the vascular spaces and form on a level with the external or internal edge of the sterno-mastoid a collection which, left to itself, may rupture outwardly. The pus from secondary retropharyngeal abscesses consecutive upon inflammation of the vertebræ may fol-

low the length of the loose connective tissue, which is found between the œsophagus and the vertebral column, penetrate the posterior mediastinum, and, in passing under the transverse portion of the aorta, provoke a suppuration in the prevascular space. If the suppuration may not be arrested there, but may invade the pericardium or the pleural cavity and produce a pericarditis or a purulent or ichorous pleurisy.

It is much more rare to see the purulent collection leave the retrovisceral space, traverse the length of the bucco-pharyngeal space, under the buccal aponeurosis, and appear in the parotid region to rupture on a level with the cheek or at the side of the maxillary. Bokay Sr. has seen only a few cases where the pus of the idiopathic abscess followed this path.

Equally rare is the formation of several abscesses in the pharynx. Among my hospital patients, I have observed this contingency only in a few isolated cases. Abscesses from congestion, particularly those which are consecutive upon inflammation of the vertebral column, may erode the vertebral artery and thus lead to a fatal hemorrhage. In 1881, Szekeres published the case of a four-year-old child who entered the Children's Hospital in Budapest and died with symptoms of pulmonary inflammation complicated with hæmatemesis; on autopsy was found a retropharyngeal abscess which had perforated the œsophagus and the common carotid. Traumatic abscesses which develop consecutively upon the deglutition of foreign bodies may accompany extensive subcutaneous emphysema (Koths).

If retropharyngeal abscesses are not opened, death generally follows from suffocation caused, for the most part, by the penetration into the respiratory tract of pus which has burrowed through some part of its walls. In such isolated cases, the fatal termination is directly induced by ischæmia or by pneumonia (pneumonia aspirativa).

*Symptoms and Progress.*—The time in which a retropharyngeal abscess develops varies greatly. Bokay Sr. has seen nine abscesses form in two days, seven in three days, three in four days, five in five days, three in six days, thirteen in eight days, and twenty-five between nine and fourteen days. In 13 cases the formation of the abscess continued three weeks, in 10 cases four weeks, in 1 case five weeks, in 3 cases six weeks, in 2 cases eight weeks, in 1 case more than eight weeks. These figures justify the division of idiopathic abscesses into acute, subacute and chronic.

The first symptom by which the affection is made manifest and which remains predominant is the *difficulty of deglutition*. While later, when the abscess has completely or almost completely developed, the dysphagia is explained by the presence of a tumor and is, therefore, of the mechanical order, at the outset of the malady, difficulty of deglutition arises for the most part from the pain caused by the inflammation. Infants do not nurse easily. They seize the breast greedily, but push it back after one or two swallows of milk and begin to cry. Among larger children, the painful dysphagia manifests itself in particular when they swallow solid food or irritating drinks. In proportion as the abscess develops, deglutition becomes progressively more and more painful, and the dysphagia attains its maximum when the abscess is fully formed. In very extensive subacute or chronic abscesses, the child may remain for some days without taking food (liquids pass with equal difficulty and are in the main rejected through the nose and mouth) and may fall into a state of extreme weakness from this almost absolute inanition. In some cases the patient may diminish the pain which accompanies deglutition, by assuming a certain position; in other cases one may see an extensive abscess hardly obstruct deglutition especially when the purulent collection in place of bulging is patulous and scarcely contracts the pharynx.

The dimensions of the naso-pharyngeal cavity vary with the age; the younger the child, therefore, the more noticeable will be the narrowing of this cavity by the abscess, and the more pronounced will be the dysphagia.

Besides dysphagia, should be noted as an equally important symptom, alteration of the voice, which acquires a nasal intonation, and, in crying or speaking, the timbre is obscured. This modification of the tonality is so characteristic that on hearing this nasal voice among children a post-pharyngeal process should immediately be suspected and an examination of the pharynx made. With the onset of post-pharyngeal adenitis, the voice is only slightly altered, but in proportion as the process progresses and the abscess develops, the nasal character of the voice becomes more and more apparent. When the collection acquires considerable bulk beneath the posterior wall of the pharynx, we sometimes find, besides this particular tonality, a rattling noise accompanying the voice.

The *respiration* in retropharyngeal adenitis and idiopathic ab-



scases is always embarrassed, and this difficulty appears with the characteristics of a stenosis of the upper air passages. Careful study of the respiration may satisfy us as to the site and extension of the process. When, for instance, the adenitis or the abscess occupies the upper part of the pharynx, it is principally the nasal respiration which is affected, and often to such a point that the child breathes only through the mouth, which is constantly open, and its rest is, therefore, as much disturbed during the day as it is at night. When the adenitis or the abscess is more deeply situated, or when the inflammatory process has descended as far as the epiglottis or even lower, we find, in spite of the integrity of the nasal respiration, very severe respiratory disturbance, the intensity of which may recall that of the stenosis of croup. When the abscess is of great volume, the breathing is stertorous, particularly when the child is in the horizontal position. In sleep, moreover, the respiration is at times arrested and the patient is continually under the menace of death from suffocation. In general, the obstacle to respiration and respiratory troubles are more severe in proportion as the child is younger and the progress of the abscess more rapid. An accumulation of mucus in the buccopharyngeal cavity contributes in making the respiration still more difficult, as it is then accompanied by loud râles and moans.

Among the symptoms of post-pharyngeal adenitis and abscess, the *pathological position of the head* merits special attention. In acute cases this symptom exists from the outset; in subacute and chronic cases, it appears only at a later stage of the malady. The child holds its head rigid, a little inclined to the side, and, if the submaxillary region is carefully explored, a quite deep-seated ganglionic tumefaction of the size of a kidney-bean, a nut, or even of still larger dimensions will be found on a level with the angle of the jaw. Ordinarily this ganglionic turgescence occurs on the same side as the abscess, more rarely it is bilateral. In connection with this deep adenitis is sometimes found an enlargement of the superficial cervical glands. Sometimes these tumefied glands are softened and suppurating. In proportion as the inflammation augments, the submaxillary region is seen to grow round, to become full and in certain cases the protuberance formed there becomes appreciable to the least experienced eye. In these cases, external palpation confirms the existence of a deep fluctuation. Thanks to the bulging which it makes, the neck appears swollen and the head is impeded in its movements. In an advanced stage

of the malady, the rigid, immovable position of the head is still more striking, and in grave cases, which are far from being rare, we see the child entirely motionless, with its head bent back and carefully guarding itself from the slightest movement.

In local examination, inspection and digital exploration of the pharynx have a special importance. But, while inspection alone may often prove insufficient (in case of deep-seated abscess or inflammation) to establish a precise diagnosis, digital exploration and palpation of the pharynx lead us in every case to recognize the nature of the morbid process. Therefore, in this mode of exploration, palpation has a greater value than inspection, and one may say that those who content themselves with inspection alone, without having recourse to palpation, run the risk of ignoring the existence of retropharyngeal adenitis or abscess, and of interpreting in an erroneous manner the symptoms observed (difficult respiration).

In examining the patient, exploration of the throat should never be deferred, as in this way, one may satisfy himself as to the condition of the various organs of the bucco-pharyngeal cavity. When the post-pharyngeal process occupies the upper parts of the pharynx, one may see by depressing the back of the tongue a more or less voluminous local tumefaction on the lateral parts of the posterior wall of the pharynx, behind the tonsil. The swelling is characterized by a dull red color from the injection of the mucosa. When the abscess is fully formed, the surface of the tumor, if one is found, has a paler color. At the place where the anterior wall of the abscess has become thinner and is ready to rupture, from its transparency, the yellowish color of the pus may be seen. In these cases, inspection admits of deciding at the same time upon the place where the incision ought to take effect.

Among little children, with whom one is not impeded by the presence of teeth, digital exploration encounters no difficulties. After extending the child's jaws, it is easy to introduce the index finger into the mouth and to push it,—passing quickly over the back of the tongue,—as far as the posterior wall of the pharynx. The introduction of the finger should be made as softly and as rapidly as possible, as in this way an attack of suffocation or of vomiting on the part of the child may be avoided. If one exploration alone does not afford sufficiently exact intelligence, a second examination may be made after the lapse of some moments.

With larger children who already have their teeth, the molars

in particular, the best way of penetrating the mouth is to pass the finger along the internal surface of the cheeks and behind the molar teeth (method of *Abelin-Bokay Sr.*). When, by pressure of the finger, the resistance has been conquered, we have only to depress the base of the tongue in order to force the child to open the mouth and to render all biting impossible. To keep the mouth open, a mouth-gag (*Ferguson*, *D'Ulrich* or *O'Dwyer's* method) should be inserted between the teeth. If one has no mouth-gag, the handle of a spoon wrapped in a piece of cloth and placed between the two rows of teeth may serve in its place. In cases where the jaws cannot be opened easily, for instance when the children violently close the teeth against each other, recourse may be had to the artifice practiced by *Hueter* and *Henoch*, which consists in forcing back the lower lip against the lower incisors; from fear of biting its own lip, the child generally opens its mouth. The use of metal finger protectors (*Laugenbeck*) or rubber rings seems to me undesirable for several reasons: they prevent introducing the finger deep enough, impede its movements and the sensation which exploration of the pharynx may cause will be absent. Personally, I prefer practicing digital exploration of the pharynx with the child lying down, usually placing myself behind its head and proceeding in such a manner as to introduce the finger with the palmar surface turned upward and pushing it as far as the posterior wall of the pharynx which I thus explore with the tip of the finger. The administration of chloroform, for the purpose of rendering the examination less difficult (*Giraldes*), is unnecessary and is moreover dangerous on account of subsequent respiratory troubles and vomiting.

If the retropharyngeal adenitis has not yet passed into suppuration, digital exploration will make us sensible of the presence of a smooth, compact tumefaction of the volume of a small pea, a kidney-bean, a nut, or even of a prune, situated on a level with the edges of the posterior wall of the pharynx. In fully formed abscesses, one finds a smooth, elastic, renitent protuberance; if the abscess be of great volume, this swelling will extend from the upper to the lower part of the pharyngeal cavity and will sometimes entirely fill it, or it may occupy only the left or the right side. In exceptional cases, the abscess is situated on the median line and enlarges laterally. When the morbid process descends very low, or when it is very deeply seated (called post-œsophageal abscesses) we cannot encircle the swelling by ordinary palpation

and determine its lower limit; in order, therefore, to make a complete examination, one is obliged to push the finger deeply into the pharynx.

Palpation, however, enables us not only to diagnose a post-pharyngeal inflammation; it satisfies us at the same time concerning the resistance of various points of the tumor and thus gives some indications in the matter of treatment. By exercising pressure on the morbid mass with the exploring finger, one may ascertain whether the abscess is completely formed, and whether a thinning of the wall of the abscess is existent in these places which then offer less resistance.

At the outset, even in acute cases, the fever is moderate; in subacute and chronic cases it may be absent. When suppuration is established the febrile disturbance increases and attains a high degree; after the incision or the spontaneous opening of the abscess, the fever ordinarily abates very rapidly, but may reappear if the cavity fills anew, and may continue for several days, reaching a still higher degree than before the evacuation of the collection. The pulse presents no special characteristics. In cases where the respiratory disturbances are very pronounced and are accompanied by cyanosis, the pulse becomes accelerated, small, soft, and hardly appreciable.

In some isolated cases, manifestations on the part of the nervous system may supervene; yet nervous symptoms never appear at the onset of the affection, but only at a period when disturbances of respiration and circulation have become very marked. Somnolence and eclampsia are usually observed at that time. Bokay Sr. has seen, in three cases, facial paralysis after idiopathic abscesses (from compression of the facial nerve at the same level as the stylo-mastoid foramen).

The symptoms arising from study undergo some modifications in "secondary" abscesses (from congestion). Their development is, in general, slow, and the swelling formed in the pharynx is never as voluminous or as tense as in the idiopathic abscesses. In abscesses, from congestion, consecutive upon an inflammation of the cervical vertebræ, the almost absolute immobility of the head and the very lively perception of pain in the nape of the neck dominate the other symptoms and cause movements made by the child to be executed with the greatest apprehension and with genuine fear. In cases of this kind especially, symptoms of abscess develop with extreme slowness; in one, that of a boy of

two years, observed by Bokay Sr., the first characteristic symptoms appeared at the end of one year; in another case, that of a boy of five years, not until three years after the onset of spondylitis. Thanks to the diffusion of the purulent collection through the neighboring spaces, moreover, these morbid masses, when they appear in the pharynx, seem still more flattened than the secondary retropharyngeal abscesses consecutive upon supuration of the cervical glands.

Nothing in particular can be said of the symptomatology of abscesses of traumatic origin. In the metastatic or septicæmic abscesses, one finds in connection with extremely grave local phenomena and very rapid development, the symptoms of ischæmia.

Metastatic retropharyngeal abscesses arising from scarlatina, are observed most frequently in extensive necrotic anginas, complicated with gangrene.

Under ordinary conditions, careful exploration of the pharynx serves to establish the diagnosis without difficulty. The various forms of acute inflammation of the throat (parenchymatous tonsillitis for example), hypertrophy of the tonsils, adenoid vegetations and naso-pharyngeal polypi with which adenitis or retropharyngeal abscesses may be confounded, will always be recognized if the examination of the patient is made in an attentive and conscientious manner. Confusion with croup or a postdiphtheritic paralysis is a diagnostic error which one can hardly commit.

The diagnosis may present some difficulties in cases where the retropharyngeal inflammation is complicated with another serious affection of the throat, scarlatinous necrosis for example; a diagnosis of inflammation or of retropharyngeal abscess then becomes impossible without digital exploration of the pharynx.

We need not enumerate the symptoms which enable us to make the differential diagnosis between idiopathic, and metastatic and secondary abscesses; it is sufficient to refer the reader to those who have already spoken on the matter of the symptomatology of these affections. We will only add that sometimes the most experienced physician will encounter considerable difficulty in distinguishing between a chronic idiopathic and a secondary retropharyngeal abscess.

*Prognosis.*—In considering the symptoms of retropharyngeal abscess, it is evident that these abscesses must rank among the

gravest affections of childhood. In a general way the prognosis is more favorable the earlier the nature of the disease is recognized and the sooner the corresponding operative treatment is instituted, because it is certain that an ignored retropharyngeal abscess, as a rule, terminates fatally. Death does not always arrive slowly; when caused by progressive asphyxia, it may ensue rapidly and unexpectedly. This sudden death appears to be due either to a spasm of the glottis or to "the inhibitory phenomena, whose point of departure is found in an irritation of the nervous terminations of the mucosa, or in an unexpected compression of the great nervous trunks of the neck." Thoyer-Rozal (1). The spontaneous rupture of the abscess is a very rare contingency, and, in 144 cases, Bokay Sr. saw this take place only 19 times.

In acute cases, the prognosis is further obscured by the appearance of grave symptoms (dysphagia, respiratory disturbance); the younger the child, the more uncertain is a favorable result, because the comparative narrowness of the isthmus of the fauces, at this age, aggravates the severity of the local symptoms and enhances the difficulty of opening the abscess. The migration of the pus to a distance (the length of the œsophagus for example) and the deep situation of an abscess render the latter not easily accessible and the prognosis doubtful.

If, at the moment of spontaneous or surgical evacuation of the abscess, the pus is inspired (very voluminous abscesses or asphyxiated condition at the time of the incision) the entrance of a large quantity into the respiratory tract may cause symptoms of suffocation and constitute, for a moment, a grave danger to life. The penetration of a small quantity of pus into the trachea and bronchi may occasion aspiration pneumonia which certainly ought to be considered a bad complication.

It is unnecessary to add that in formulating the prognosis, one should take into consideration the constitution (constitutional maladies), the nutritive condition and the strength of the patient.

Our hospital statistics furnish us the following information concerning the termination of idiopathic abscesses: from 1854 to 1880, of 179 idiopathic abscesses, 6 fatalities, or a mortality of 4 to 100, were observed. From 1880 to 1888, of 138 cases, 8 fatalities, or a mortality of 6 to 100. Since then, these figures have not changed appreciably.

1. Abscès rétropharyngiens idiopathiques des enfants. Thèse de Paris, 1896.

Retropharyngeal lymphadenitis, in the cases where it does not pass to suppuration, generally subsides at the end of a period, more or less long, and this disappearance is by no means rare. Among cases observed in hospital, I have seen only one where non-suppurating retropharyngeal adenitis caused respiratory difficulty so severe, that in order to avoid death from asphyxia, we were obliged to perform tracheotomy after the escape of the collection by the simple incision. The child, aged 8 months, recovered in a few days after complete disappearance of the tumefaction from the pharynx.

The prognosis of secondary abscesses is subordinate to the variety of these suppurations. Those from congestion, resulting from inflammations of the connective tissue and the cervical glands, are less grave than suppurations from a lesion of the cervical vertebræ.

The prognosis is doubtful in abscesses of traumatic origin, where, as a rule, a concomitant diffuse inflammation of the post-pharyngeal connective tissue is existent. The prognosis is very bad in metastatic abscesses.

*Treatment.*—Immediately after the appearance of the first signs of retropharyngeal lymphadenitis, a bladder of ice or cold compresses should be applied to the submaxillary region on the side occupied by the adenitis. If the tumefaction does not diminish under this treatment, and if soft places, indicating that suppuration is inevitable, are also found, the ice should be replaced by Preissnitz's compresses, since, by the use of warm poultices which hasten suppuration, the abscess may be opened sooner.

Painting the uvula and pharynx with the tincture of iodine or the iodized solution of iodide of potassium, extolled by Schmitz (1873) as resolvents of retropharyngeal adenitis, is no longer in use.

Up to 1888, the retropharyngeal idiopathic abscess was always opened through the oral cavity, and, with some trifling modifications, the physicians of every country operated in the same manner. From 1854 until the present time, this procedure,—incision through the oral cavity,—has been in use at the Stèphanie Children's Hospital of Budapest.

Formerly, we incised abscesses with a narrow pointed bistoury, whose blade was wrapped almost to the point with strips of adhesive plaster. Since 1874, we have used, exclusively, Schmitz's pharyngotome, which seems to us more convenient than that of

*Carstens'* (1). The child is seated, with the head straight, on the knees of the nurse or mother, in such a way, that its head and back are well supported against the chest of the person who holds it and who, with her arms, encloses the body and arms of the little patient, thus rendering enveloping in a cloth unnecessary. An assistant, placed behind, holds the child's head and exercises a moderate pressure with his fingers on the sub- and post-maxillary region in order to immobilize the abscess as much as possible and render its incision less difficult. After opening the mouth sufficiently, we insert, in the pharynx, the index finger of the left hand, which serves as a guide for the introduction of the pharyngotome or concealed bistoury held in the right hand.

After carrying the instrument the length of the finger as far as the collection, it is forced into the most dependent part of the abscess. *Temoin* (2) proposes to evacuate abscesses of large size twice; first to make a puncture with a trocar to drain part of the pus, and afterwards to enlarge the incision with the bistoury to empty the whole collection. As soon as the incision is made, the child's head is bent against its chest in order to facilitate the flowing of the pus through the pharynx and the mouth. To obtain a still more complete evacuation of the collection, the index finger is again introduced into the pharynx and a soft pressure from below upwards is made upon the deepest part of the abscess, the assistant at the same time pressing on the corresponding part of the neck. In my opinion, however, this little operation, very simple in itself, must be executed with a certain rapidity. If, by chance, the first attempt at incision miscarries, one should wait some seconds before making a second effort.

In 1888, *H. Burekhardt* (3), a physician in Stuttgart, published an article, in which, by virtue of 3 cases, he proposed to handle the retropharyngeal abscess no longer through the mouth, but by an internal incision, made opposite the pharyngeal cavity on the internal edge of the sterno-mastoid, even with the larynx. The external incision first practiced by *Saint Germain* in 1872, then by *Etienne* of Edinburg in 1877, was adopted as a general method of treatment for retropharyngeal abscesses by *Cheyne*, in 1881. *Sacchi* (4) 1892, and *Reverdin* (5) had recourse to this procedure

1. *Jahrb. f. Kinderheilk*, 1894, p. 373.
2. *Rev. mensuelle des mal. de l'enfance*, 1877.
3. *Centralb. f. Chir.*, 1888, No. 4.
4. Cited by *Karewski*. *Die chirurg. Krankh. d. Kindesalters*.
5. *Rev. méd. de la Suisse romande*, XV., 2.



with success in several cases. Burckhardt thinks that his method is destined to ameliorate the prognosis of retropharyngeal abscesses, and that it is particularly indicated for small children when these abscesses are very extensive and deeply situated. Finally it may be said in regard to this author that the procedure in question would be particularly advantageous in the metastatic retropharyngeal abscesses and those arising from inflammation of the vertebræ.

The principal objections that Burckhardt made to the oral cavity is that when the abscess is evacuated through the mouth, it is difficult to keep the incision open, that post-operative treatment cannot be conducted antiseptically and that, according to Professor König's expression, the treatment of these abscesses does not correspond to the modern ideal of the treatment of abscesses in general. The justice of these remarks should be admitted, of course, but at the same time, I wish to add that the objections made to the oral cavity have not, really, very great importance. It is true that it is difficult to keep the incision open and that in the course of the malady one is sometimes obliged to repeat the operation two, three or even four times; but it is also certain, as is already sufficiently shown by the slightly increased mortality in our statistics, that these multiple interventions neither influence nor aggravate the malady. As to the treatment of the abscess after its opening through the mouth, it hardly admits of anything else than washing the throat from time to time with water or a weak antiseptic solution (boric acid) and the systematic expulsion of the contents of the abscess with the finger. Although these therapeutic measures may be very far from the modern ideal of the treatment of abscesses, they have, nevertheless, given very satisfactory results up to the present time. Therefore, the external incision does not seem to me preferable to the incision through the oral cavity, for the reason that Burckhardt's procedure is a delicate operation and one which every physician cannot execute under all circumstances. Indecision or delay in retropharyngeal abscesses may cause the patient's life. But I willingly confess that this procedure seems to me destined to have a great future in the operative treatment of retropharyngeal abscesses of traumatic origin or consecutive upon an inflammation of the cervical vertebræ.

## PHILADELPHIA PEDIATRIC SOCIETY.

DR. EDWIN E. GRAHAM in the Chair.

March 14, 1899.

DR. S. C. POTTS read a paper entitled: "CASE OF FRIEDREICH'S ATAXIA."

This little girl up until five years of age was as other children. She has one sister who is healthy. At the age of five she began to develop symptoms which have progressively increased to the condition which you see at present. I would call your attention to the following symptoms: In the first place the gait is markedly incoördinate; this is increased when she shuts her eyes. Marked nystagmus is seen when lateral movements of the eyes are made; there are also jerky movements of the head and jerky choreiform movements of the arms (static ataxia) and clumsiness and difficulty in picking up small objects. She also has some tendency to talipes varus; one foot shows this more markedly than the other. There are no sensory symptoms whatever. There are no changes in the eye-ground, and her mental condition is much better than you would expect from the expression of the face. Her speech is defective, being hesitating and slurring. Our records say that she is fifteen years of age, although she looks younger. She can read and write. The knee jerks are absent. She has a fair amount of strength in her limbs and could walk well enough were it not for incoördination. There are no eye symptoms except nystagmus.

As to the absence of the knee jerk in Friedreich's ataxia and its presence in ataxic paraplegia, I believe that the sclerosis of the posterior columns in ataxic paraplegia is situated higher up in the cord than in Friedreich's ataxia and as a usual thing the lumbar region escapes. In Friedreich's ataxia the situation of the sclerosis of the posterior columns is similar to that found in locomotor ataxia. I think the posterior root-zones also escape in ataxic hemiplegia while they are involved in Friedreich's ataxia. The cases formerly classified as Friedreich's ataxia where the knee jerks are present are now classified under the name, hereditary cerebellar

PHILADELPHIA PEDIATRIC SOCIETY.

and in those cases which have come to autopsy the p  
r columns have been found uninvolved.

DR. T. S. WESTCOTT exhibited A HOME-MADE MEASURE F  
SUGAR OF MILK, intended to weigh by dry-measure the amount  
sugar to be used in various milk mixtures.

DR. F. SAVARY PEARCE reported a case of TRAUMATIC NI  
RITIS, with Complete Monoplegia of the Right Forearm. Ope  
tion: Improvement.

DR. C. W. LEFEVER reported a case of ACUTE DILATATION  
THE HEART, WITH SPECIAL REFERENCE TO THE USE OF DIGITALIS

The child, a boy of five, had been the subject of acute dila  
tion of the heart, following prolonged severe illness from bronch  
pneumonia and measles. The family history presented nothing  
of importance except some instances of hemophilia. The bo  
personal history previous to the present illness was good. He w  
of rather fine lineaments, but well developed and showed no cl  
bing of the fingers or other evidence of congenital heart aff  
tion. He had no history of tonsilitis, rheumatic pains, or sc  
latina, and had suffered from none of the acute infectious c  
eases of childhood except varicella, which was of mild degree. T  
present illness dated from 4 years of age when the patient beg  
to have a dry cough and frequent vomiting, and pain over the  
per part of the abdomen; four months later he was taken w  
broncho-pneumonia from which he was seriously ill for five wee  
But little gain in weight or strength had taken place when at  
end of seven weeks from the onset of the pneumonia he to  
measles from his brothers and sisters, and was sick about a we  
from this. Two months later the patient was first seen by L  
LeFever. He was then extremely prostrated, in much distre  
and anæmic. There was marked enlargement of heart dulne  
protrusion of the præcordia and feeble rapid pulse. The respi  
tions were 56 per minute. There was enlargement of the sup  
ficial veins, œdema of the feet and legs and the liver was so  
gorged with blood as to fill almost the entire abdominal cavi  
After four months' treatment, consisting of absolute rest in b  
abundant liquid nourishment, general tonics and digitalis  
creased to heroic doses, the patient was able to go for short wa  
and take other gentle exercise. As shown to the Society, the b  
in general appearance scarcely gave evidence of a previous  
ness. Systematic treatment was discontinued at the end of sev  
months. The gain in weight was from 28 pounds to 40 pound  
during the seven months.

The points to which attention was called in the paper were:

(1) The heroic dosage of digitalis—the largest dose which, was continued for several weeks, being 24 gtts, t. i. d. Perceptible lessening of this dose caused exacerbation of symptoms. The probable trophic influence of the drug was mentioned.

(2) The backward leakage through the mitral valves was thought to be due to stretching of that orifice.

(3) The persistent pressure of vomiting was believed to be due to engorgement of the gastric mucous membrane. Liver pressure was also suggested as a cause of vomiting.

#### DISCUSSION.

DR. A. O. J. KELLY.—I have no desire whatever to invalidate the correctness of Dr. LeFever's diagnosis, but I would simply like to ask why he does not consider the case one of endocarditis. It appears to me there is evidence of rather considerable hypertrophy, and in addition to the systolic murmur, I detect also a diastolic murmur and a diastolic thrill, and it seems to me also that there is accentuation of the second pulmonic sound. From these symptoms I infer that there might have been an endocarditis, and ask if the doctor has reason for not believing so.

DR. EDWIN E. GRAHAM.—Rest does a great deal for these heart cases. This child was in bed four months before there was any distinct improvement in the heart condition. We have all seen many cases which showed improvement only after being relieved of the strain and excitement of an active life. The point which Dr. LeFever made in regard to the trophic influences of digitalis I think was tested two years ago by Dr. Hare, who read his paper before the Association of American Physicians. Dr. Hare took four pigs from a certain litter and fed them for several months on small doses of digitalis; four pigs from the same litter were given the same diet but the digitalis was omitted. When the animals were a few months old they were all killed, and those to whom digitalis had been given systematically presented in every instance a larger heart than those that had not received the daily doses of digitalis. I think the question of digitalis alone being responsible for this child's improvement must be negatived; in the production of the improvement we must add the factor of rest.

The point raised by Dr. Kelly I think is a very good one, in so far as statistics show; unquestionably far more cases would show a murmur due to endocarditis than a murmur due to a stretching

of the mitral orifice. The dilatation in this heart was largely in the ventricle, and while that dilatation has been largely overcome by the hypertrophy, I question very much whether the murmur that persists is due to a stretching of the mitral orifice, and I would be much more inclined to believe that it was due to a previous endocarditis. The fact that children often do not present any previous history of rheumatism or scarlet fever counts for very little. We not infrequently see cases in which the influence of rheumatism has been expended upon the serous surfaces and there are practically no manifestations found in the tissues of the joints.

DR. C. W. LEFEVER.—I would just say that I based my diagnosis very largely upon the following points: In the first place, the boy had been in a wasting condition for a considerable length of time and his strength had been gradually failing. Then the œdema of the feet, the persistent coldness of the feet and hands, the sweating, the relaxed condition of the circulation in the extremities, the rapid, feeble pulse, the enlargement of the superficial veins and the engorgement of the mucous membranes and the liver,—none of these would have been apt to have occurred had the heart been hypertrophied or had full hypertrophic compensation occurred as the dilatation took place. I think, therefore, that the enlarged area of heart dullness and protrusion of the chest wall were due to dilatation, and on recovery I believe more or less contraction and return of the muscle fibres to their former condition took place. I do not believe during my connection with the case at least, that there was any evidence of acute endocarditis, and I made as careful an investigation as I could to determine this point. Neither did I observe any evidence of a former inflammation of the valves. My last examination was made two months ago.

DR. J. H. JOPSON exhibited A CASE OF PERSISTENT OMPHALOMESENTERIC DUCT WITH PROLAPSE.

The patient is a well nourished male child, aged four months, without history of any form of congenital malformation in the family. The cord dropped on the fourth day. At the end of two or three weeks it was noticed that the umbilicus was not of normal appearance, and at its site appeared a small rounded tumor which has persisted and become slightly larger. It is now the size of a cherry, slightly conical or ovoid, is covered with dark-red mucous membrane, and at its apex is an opening large enough to admit a probe, which can be passed in for a distance of an inch

and a half. From this opening, the mother states, a small amount of fecal material escapes. When closely watched the tumor can be seen occasionally to rotate slowly on its axis, with a deliberate, almost vermicular, movement. The case is evidently one of persistence of the omphalo-mesenteric duct, with partial prolapse through its umbilical opening.

The tumors which appear at the umbilicus in the infant are classified by Sauer as I, granulations at the site of the cord, granuloma umbilici or fungus umbilici; II, growths arising from the remains of the distal portion of the omphalo-mesenteric or vitelline duct, which are diversely considered either as true tumors of a sarcomatous nature (V. Huttenbrenner), or as merely eversions of a portion of the duct which has remained patulous, without altogether excluding the possibility of some tumor change (Ledderhose and Kolaczek); III, protrusions due to the eversion or prolapse of a completely patulous vitelline duct, which is the explanation of the condition found in this case.

The prognosis is not serious so long as it remains a mere fecal fistula, although internal strangulation of the bowel around the diverticulum may take place. If prolapse of the duct occurs, followed by prolapse of the bowel, forming a bicornate, V-shaped, or sausage-shaped protrusion from the umbilicus, intestinal obstruction and strangulation are the natural consequences.

The treatment is very unsatisfactory. If prolapse has not occurred, repeated cauterization or paring and stitching of the edges may close the opening. If prolapse has occurred, operative measures such as paring and stitching the edges, ligation of the mass, and the use of the galvano-cautery are attended with much risk, as a fold of peritoneum surrounds and extends into the prolapse and will therefore be opened. Attempts at the reduction of a large prolapse are also very dangerous. The most radical but most logical treatment consists in opening the abdominal cavity, excising the diverticulum and with it the edges of the umbilical opening, closing the bowel and sewing up the abdominal wall. The mortality is unfortunately very high, 24 operations having given 19 deaths. (Sauer.)

#### DISCUSSION.

DR. J. L. HAMMOND.—I saw a case of this character about three years ago in a child one day old. The condition was of course much more readily outlined than this which has gone on and the irritation has set up considerable granulation so that the parts are not so readily distinguished. I did the usual laparoto-

my and endeavored to do end-to-end anastomosis. This could be accomplished until the bowel had been divided both above and below its attachment to the urachus, of which it seemed to form a part. The child died within the next twenty-four hours.

DR. J. P. CROZER GRIFFITH read a paper entitled, "BRIEF REPORTS OF INTERESTING CASES."

1. Acute yellow atrophy in a boy of seven years. The disease began as an ordinary icterus. Later coma developed, the icterus was intense, vomiting of blood occurred, the liver became much reduced in size and leucin and tyrosin were found in the urine. No autopsy could be obtained.

2. Two cases of thigh friction in infants. The first was in a girl of sixteen months, seen but once. The movements were characteristic. The second was in a girl of thirteen months. The friction began at the age of eight months. Friction was practiced very frequently during the day, almost whenever the child was not diverted. The act was attended by redness of the face and perspiration. No cause could be found in the condition of the genitals or the urine.

3. Nervous incontinence of feces. The boy, now eight years old and always a nervous child, had never learned to control his bowels. Fæcal evacuation would occur once or oftener in a day, the formed stools being passed in the clothing before the child could reach a place for relief. The condition was associated with incontinence of feces and habit spasm. Rapid recovery took place under the use of arsenic and belladonna.

4. Peritonitic pneumonia. This case, a child of four years, illustrated the simulation of peritonitis by pneumonia, which is sometimes seen. The child was supposed by the attending physician to have appendicitis, and an operation was asked for but refused. There were absolutely no symptoms of pneumonia, those of appendicitis were most suggestive. In a day or two the latter had disappeared, and the pneumonia became evident.

5. Meningitic typhoid. A case illustrating the marked simulation of meningitis by typhoid fever, the case appearing at first to be undoubtedly meningitis.

6. Angio-neurotic œdema in a child of about twenty-months. Associated with some urticaria and indigestion, marked œdema of the whole right hand and forearm and of half the left hand developed and lasted some days. Later a similar attack affecting principally the left hand. Some spots on the face were seen also.

Dr. L. J. HAMMOND read a paper entitled, "REMARKS ON THE DIAGNOSIS OF CEREBELLAR ABSCESS IN CHILDREN," with a record of five cases.

He said that pyæmia of the encephalon occurs in children usually as the result of suppurative inflammation of the cavities accessory to the brain. The period, therefore, when it is most to be expected is from the beginning of dentition through the time of special liability to the exanthematous diseases. Traumatism is also a most frequent cause; many times when apparently trifling it may lead to deep seated disease. The same pathologic conditions cause usually cerebellar abscess in children, while in adults the disease is generally in the cerebrum or extra-dural. This condition is probably explained by the fact that the outer table of the bone in children is less dense, and this permits of an early rupture and spontaneous evacuation of the pus from whatever infective source it may arise. There seems at least to be no other explanation for the occurrence of abscess in this portion of the encephalon, in the five cases that had come under Dr. Hammond's observation; there had been during this same period three cases of cerebral abscess in adults from the same infective source. It is obvious, therefore, from the frequency of its occurrence and its great fatality that a definite symptomatology should be recognized in order that early operative intervention may be instituted. The symptoms that have been so universally present are: discrepancy between the temperature and pulse, the former being often subnormal, while the latter ranges 120 to 160; flexion of the extremities; dilatation of the pupils; uncontrollable restlessness, with a half unconscious condition; peculiar indisposition on the part of the patient to obey requests made; sugar in the urine; slow respirations; swinging of arms and inclining head toward one side, and absence of paralysis. The observation of these symptoms made it possible to locate abscess in the cerebellum in four of the five cases that have come under Dr. Hammond's observation.

Dr. GEORGE WOODWARD reported "A CASE OF STREPTOCOCCUS MILK INFECTION."

Dr. Wm. Royal Stokes in his report to the Baltimore Health Department\* upon the microscopic examination of milk concludes that "the microscopic examination of the centrifugalized sediment of the milk from a herd of cattle, if found to contain an excessive amount of pus, should suggest a careful inspection of the herd." He excludes from the herd a cow yielding pus-contain-



ing milk in which the average number of pus cells per field in stained centrifugalized sediment from 10 c. c. of milk shows more than five pus cells to the field of a 1-12 inch oil immersion lens.

\*Annual Report, Health Department to Mayor and City Councils of Baltimore for year ending December 31, 1897.

Acting upon the conclusion of Dr. Stokes, the Philadelphia Board of Health has undertaken a similar investigation. On two samples of milk daily are delivered to the bacteriological laboratory for examination and report.

In the first month the laboratory found three samples of milk containing pus corpuscles and streptococci and one containing pus without the organisms of suppuration; from the latter, however, streptococci were obtained by cultivation.

Dr. Woodward then reported one case to illustrate the value of this work. A woman brought to the milk inspector a sample of milk from her usual household supply stating that whenever she drank the milk it made her "deathly sick." This milk, upon microscopic examination, gave a striking picture of pus corpuscles and streptococci. One field, reproduced as a photo-micrograph, was shown.

In this city the milk inspector stopped the sale of the infected milk within the city limits. At the same time he wrote to the dealer who sold the infected milk in bulk to the city dealer advising him to consult a veterinarian, and stating that his milk would not be admitted for sale within the city limits until he furnished a clean bill of health for his herd of cows.

The veterinarian reported:

"Rushland, January 10, 1898.

"To Whom It May Concern:

"This is to certify that I have, this day, carefully examined the dairy, consisting of seventeen cows, belonging to Charles C. Rushland, of Rushland, and find fifteen of them to be in good condition. One Jersey, with first calf, giving bloody milk from the left anterior quarter of udder, and one graded Aldernay giving pus from the right posterior quarter of the udder.

"Thos. T. B. Kirk, D. V. S.

DR. JAMES H. MCKEE discussed "THE DEVELOPMENTAL INFLUENCES OF PLAY."

The paper first drew attention to the influences of play in the development of the lower animals, showing that the beneficial results are not confined to motor and psycho-motor functions, but that the animal might be advanced through play to a higher plane of intelligence.

Spontaneous play may produce similar results in the case of the child. The muscles, the spinal centres, the basal structures, the psycho-motor centres, the intellectual centres and the association centres share in a common development.

The pedagogists know what Basedow achieved through the medium of play, and how much stress Froebel laid upon the same agency.

The psychologist can advance many reasons in the support of play as a developmental factor. The child's attention is engaged thereby; play affects him in an agreeable manner; and plays are probably genetic in character, etc. Following Gulick, numerous plays were mentioned which characterized the different periods of infancy, childhood and adolescence.

Some examples of gross parental ignorance were cited, and the paper closed with a discussion of the *moral* and *sociologic* aspects of the question.

## ANNOUNCEMENTS.

*Congrès périodique international de Gynécologie et d'Obstétrique.*  
3<sup>d</sup> Session—Amsterdam—Aout 1899.

Dear Sir.

We have the honour of soliciting your presence at the 3<sup>d</sup> Intern. Congress for Gynecology and Obstetrics to take place at Amsterdam from the 8<sup>th</sup> to the 12<sup>th</sup> of August 1899 under the patronage of the Minister of the Interior.

The leading questions for discussion will be the following:

- 1<sup>o</sup>. The surgical treatment of fibro-myoma.
- 2<sup>o</sup>. The relative value of antiseptics and improved technic for the actual results in Gynaecological Surgery.
- 3<sup>o</sup>. The influence of posture on the form and dimensions of the pelvis.
- 4<sup>o</sup>. The indication for caesarian section compared to that for symphyseotomy, craniotomy and premature induction of labour.

We have succeeded in obtaining the valuable concurrence as reporters of M. M. Doyen, Howard Kelly and Schauta who will treat the first question; M. M. Bumm, Richelot and Lawson Tait the second; M. M. Bonnaire, Pinzani and Walcher the third, and M. M. Leopold, Pinard, Pestalozza and Fancourt Barnes the fourth.

We propose sending the reports with their translations in the official languages to all the members, a month before the opening of the Congress. As regards private communications, preference will be given to those bearing upon the above mentioned leading questions. Time will also be allowed sufficient for any demonstrations kindly afforded by the members.

The official languages are: English, French, German and Italian.

We venture to urge our request that you will honour the Con-

gress with your presence and, by communicating your experience, insure scientific results as satisfactory as those obtained by the previous Congresses of Brussels and Geneva.

## SUBSCRIPTION FORM.

I (1).....  
residing at (2).....  
hereby declare my adherence to the 3<sup>rd</sup>. Session of the periodical International Congress for Gynecology and Obstetrics, to be held at Amsterdam on Aug. 8 1899, and agree to pay the sum of *One Guinea* for my share of the contribution.

*Signature:*

- (1) Name, surname and quality.  
(2) Exact address.

I.....

.....  
founder (membre fondateur) (1) of the International Congress for Gynecology and Obstetrics, hereby state my intention to be present at the next Congress, which will take place at Amsterdam Aug. 8 1899.

*Signature:*

(1) Founders (membres fondateurs) are those who having paid the sum of 300 francs, are thereby exempt from all further contribution to future congresses.

Please address all communications to J. D. Emmet, M.D., Secretary for America, 91 Madison Avenue, New York.

Programme of the first meeting of Rectal Specialists at Columbus, Ohio, June 6-9, 1899:

"The Importance of Giving Rectal Diseases Special Study," Joseph M. Matthews, Louisville.

"Pruritus Ani," James P. Tuttle, New York City.

"Surgical Treatment of Non-Malignant Stricture of the Rectum," Joseph B. Bacon, Chicago.

"A Modification of Whitehead's Operation for Hemorrhoids," Samuel T. Earle, Jr., Baltimore.

of Simple Ulceration of the Rectum," Leon Straus, St. Louis.

"A Consideration of the Various Forms of Ulceration of the Rectum," Lewis H. Adler, Jr., Philadelphia.

"Rectal Carcinoma—Excision and Subsequent Colotomy," B.

"The Proctoscope as a Factor in the Diagnosis and Treatment Merrill Ricketts, Cincinnati.

"The Limitations of the Kraske Operation," Charles C. Allison, Omaha.

"The Act of Defecation," Thomas Charles Martin, Cleveland.

"Constipation Considered from the Standpoint of the Proctologist," A. Bennett Cooke, Nashville.

"Paper and Exhibition of New Instruments," S. G. Gant, Kansas City.

"Rectal Adenomata," William M. Beach, Pittsburg.

# ANNALS OF GYNECOLOGY AND PEDIATRY

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## ORIGINAL COMMUNICATIONS

### CELIOTOMY FOR CONDITIONS COMPLICATING TY- PHOID FEVER.\*

J. WESLEY BOVÉE, M.D.

It has been but a few years since the condition of patients suffering from typhoid fever was considered to be sufficiently severe to positively contraindicate any grave surgical procedure.

Then came abdominal section with closure of intestinal perforations incident to this disease and with results much better than followed the old practice of non-intervention. Some surgeons have knowingly, perhaps unwisely, done capital operations during the convalescent period of this disease. A famous abdominal surgeon not long since told me the only patient he had had to die on the operating table was one upon whom he did a section for pelvic trouble shortly after typhoid fever. I have found but two cases recorded in the library of the Surgeon-General's Office (F. E. Simpson, Phila. Med. Jour., 1899, III, 110, and E. W. Cushing, *Annals Gyn. and Ped.*, 1899, XII, 363), of typhoid fever during or directly following abdominal section, and but one of them terminated fatally. It is presumed many operations have been done during the active stages of this fever as a result of wrong diagnosis though I have found no evidence of this from the literature in the Army Medical Library. It is no more than reasonable to believe that from the enormously large number of abdominal

Read at 24th meeting Am. Gyn. Soc., Phila., May, 1899.

sections done every year that typhoid cases have been mistaken for some condition demanding operation, and particularly as such work is considered by tyros as no more difficult than finger amputations and practiced by them with equal avidity. Even among the most experienced it is quite conceivable that mistaken diagnoses are not rare. In many cases, too, as in the one here related, a condition for operation may exist and be so prominent as to entirely unguard even very careful diagnosticians. If, like this instance, the surgical diseases have pronounced symptoms antedating the typhoid fever, and particularly if the bowel condition be atypical in onset, the mistake is easily made. This is my excuse for operating in this very unique case, the history of which is as follows:

Mrs. H., white, aged 36 years, was married two years ago, and in December, 1897, had a child after a severe labor and a forceps operation done by a prominent physician of my city. She had septicæmia following the labor, like many of this physician's patients, and had been bedridden most of the time previous to her admission to my service at Providence Hospital, October 7, 1898, where she was sent by her attendant, Dr. A. T. Higdon, of Maryland.

On admission her temperature was  $101.4^{\circ}$  and she was much emaciated. She had night sweats, had lost about 28 pounds in weight and had a hectic fever every evening. An examination revealed the pelvis filled with an inflammatory mass pushing the uterus high in front. As her condition was very feeble and I was to leave next day for the Nashville meeting of the Mississippi Valley Medical Association, operation was postponed and a strict nourishing diet with stimulants ordered. She improved rapidly up to the 12th, but a time for operation was not yet arranged. On the evening of that day her temperature, which had run a fairly smooth course near the normal line, rose to  $99.4^{\circ}$  but was back to the normal line next morning. It reached  $99.2^{\circ}$  next evening, falling but  $.2^{\circ}$  that night and again rising to  $99.4^{\circ}$  the evening of the 14th. The following morning it had again fallen to the  $99^{\circ}$  line but reached  $99.8^{\circ}$  in the evening. The morning of the 16th the thermometer registered  $100^{\circ}$  and I saw her during the day. An enema was given which produced two ordinary bowel movements, not, however, affecting the temperature which ascended that evening to  $101^{\circ}$ . I was told she had been steadily improving during

my absence and was waiting impatiently for the proposed operation. She was bright, but complained to me of pains in the left side which continued until her fever disappeared four weeks later.

The fever continuing from  $99^{\circ}$  to  $101^{\circ}$  I feared an extension of the pelvic disease and resolved to operate before much harm could occur. At ten o'clock, the 19th, celiotomy was done. The temperature that morning was  $100^{\circ}$  and the pulse but 84. During the previous twelve days the pulse had been above 90 but twice, and then only when the temperature was lowest along the normal line.

At the operation the pelvis was found filled with adhesions, the left ovary disorganized into a cyst containing about four ounces of bloody fluid, and the tube of that side much enlarged and containing about a half-ounce of pus. This appendage was removed. The outer end of the right tube also contained pus, but this one was resected and the nearly normal ovary of that side liberated of adhesions. Ventro-suspension of the uterus was done. Catgut was the only suture material used during the operation. It was found necessary to infuse two quarts of physiological salt solution under the breasts during the operation. She reacted well and her evening temperature was but  $100.4^{\circ}$ . Next morning, however, it was  $100^{\circ}$  and the pulse rate had increased to 102. That evening (20th) the temperature reached  $102^{\circ}$  and receded next morning to  $99.4^{\circ}$ , only to arise in the evening to  $103.2^{\circ}$  after three bowel movements from free purgation. Typhoid fever was now suspected and Widal's reaction was obtained on the following day. There was no suppuration in the line of abdominal incision nor could any pelvic complications be found to account for the fever. The condition was regarded as typhoid fever, the treatment based upon that diagnosis and the woman was free of fever thirty days after the operation, recovering her health in due time.

While in the title of his paper, Simpson states "Typhoid fever followed salpingo-oöphorectomy," it is fairly plain that the fever really antedated the operation and, like my case, was undiagnosed at the time. In his there was no pus to delude, while in my case it was present in both tubes. In his case the Widal test was negative, but melena occurred and the diagnosis was established by autopsy. It may be in both cases, as Simpson suggests concerning his, the surgical intervention produced a relapse of this disease.

It is very probable the purgation and manipulation of the abdomen and intestine incident to elective celiotomy is sufficient to effect such a result. It is believed my patient was exposed to the typhoid bacillus while in the hospital. Yet as this fever was prevalent in the vicinity of her home it is exceedingly probable she had the disease weeks before admission and suffered a relapse.

Cushing's patient, a girl eleven years of age, was operated for the removal of an ovarian cyst on the seventh day of typhoid fever when her temperature was  $104^{\circ}$ . Typhoid fever was diagnosed before operation and the surgical intervention was deliberately undertaken with a correct diagnosis of the disease and complication. She had a rather stormy recovery, thirteen bowel hemorrhages occurring on the thirteenth day after operation. I congratulated myself on the recovery of my patient, and it would seem Cushing's case was quite remarkable.

The three cases apparently demonstrate that relapses in typhoid fever may be produced by grave surgical operations and that grave emergency operations during typhoid fever may be done with a fair degree of safety, though ordinarily contraindicated.

1404 H Street, Washington, D. C.

## WHAT CAN WE PROMISE FROM OPERATIVE TREATMENT OF CANCER OF THE UTERUS?\*

E. E. MONTGOMERY, M.D.

THIS is a momentous question to both physician and patient, and one which the former will be most surely required to answer.

The answer to it, if given without due consideration, may return to plague him in after days, and will, in the minds of a limited circle, affect his reputation for veracity. A proper and satisfactory answer to the question will depend upon: 1st, an intimate knowledge of the causes which produce cancer; 2nd, a thorough acquaintance with its pathology and course of development; 3d, an accurate diagnosis to determine (a) that the condition under consideration in the individual is malignant disease, and (b) to

\*Read before the Medical Society of the State of Pennsylvania, at Johnstown, May 17, 1899.

ascertain the extent of the invasion; 4th, the method of operative procedure by which we endeavor to combat the disease.

In the consideration of the first requisite upon which our prognosis must be founded, we find ourselves, at once, handicapped. We, as yet, do not know the causes which produce cancer. We can recognize there is a predisposition which may be hereditary or acquired, but this predisposition is only demonstrated by the manifestations of the disease.

The influence of this tendency is demonstrated in the extra virulency of this disease as developed in the young. Cancer after the climacteric may be slow in its progress, but the reverse is the rule in the victim who has not reached her fortieth year. Experience has taught us that long continued irritation induces the development of the particular form of degeneration recognized as cancer, and we are accustomed to ascribe its occurrence or failure to occur, in cases of a similar irritation, to the difference in vulnerability of the individuals, or in other words, to predisposition. This statement practically sums up our knowledge of the cause.

Many theories have been presented such as the existence of a specific germ which may possibly yet be demonstrated, but the characteristics of the disease are not such as to prominently indicate such an origin. It is true that metastases may occur in regions near to or remote from the original site, but only when the disease has so developed as to permit of the transmission through blood or lymph vessels of fragments or nests of the structure as emboli.

The disease can be developed by transplantation of its tissue, but not by the introduction of the cancer juice, demonstrating that if due to a specific germ it requires a special soil for its cultivation. While the researches of the bacteriologist have demonstrated the presence of the germs common to putrid and septic changes, no micro-organism capable of reproducing cancer has been recognized.

Second, our knowledge of the pathological condition is much more complete, though the insidious character of the disease renders the recognition of its early stages difficult and uncertain.

It begins in the epithelial cells and differs in its character and progress according to the cell structure involved. As we have two distinctive kinds of cells in the uterus, the pavement and glandular, or cylindrical, we find these two classes of cell prolifera-



tion in cancer, each form showing but little inclination to invade the territory of the other until the more advanced stages. The extensive cell proliferation leads to infiltration of the tissue, compression of vessels and early ulceration and loss of tissue, or, especially in the pavement form, the cellular proliferation is accompanied with hypertrophy of the connective tissue structure, resulting in the formation of a large tumor arising from either lip of the cervix and often filling up the vagina with a large spherical, friable mass of low vitality, the surface of which is covered with numerous small sloughs and the slightest touch to which leads not unfrequently to severe and prolonged hemorrhage. Such a tumor is known as a cauliflower growth, and arises more particularly from the pavement epithelium. Frequent mention is made of the cancer cell, but there is nothing distinctive about the cells of cancer. They possess the characteristics of the particular cell form, from which they originate, modified by pressure and in inflammatory changes; metamorphoses which are not characteristic of cancer. Under the influence of some unknown cause the cells segregate, and form nests or masses which compress the surrounding connective tissue, forming for themselves a stroma or network, which presents a condition which can be recognized by the microscope and affords our earliest means of positive diagnosis. Such a segregation infiltrates the entire wall, indeed the whole cervix. Nests project through the wall, involving the parametric tissue. Malignant disease of the uterus is slow, involving the lymphatic system, hence the almost miraculous recovery in some apparently desperate cases. With the penetration of the cervical wall, there are frequently formed nests of cells in the parametric tissue. These nests may be prolongations from the main nucleus or the cell nests may accumulate in lymphatic spaces, be broken off and washed into other places more or less remote. These emboli reach other and more important points where they develop as secondary nodules. These metastases may occur in the liver, kidney, lung, or the adjacent tissues. With advancing infiltration, the blood supply is decreased and the tissue ulcerates and breaks down, resulting in hemorrhage, foul discharge, pain, and finally cachexia.

The course of invasion is necessarily dependent upon the original site of implantation. The disease of the intravaginal portion of the cervix early extends to the vagina, more frequently toward

the anterior fornix, because of its proximity and principally because the anterior lip is most frequently involved. The vaginal walls being thin, afford but slight resistance to its advance into the cellular tissue and the vesico-vaginal septum is invaded, producing secondary disease of the bladder.

When the cervical canal is responsible, the entire wall may have been penetrated before it makes any appearance at the external os. Isolated nests form in the cellular tissue, the vesico-uterine septum and beneath the peritoneum. These nests multiply until the entire ligament may become infiltrated. The return circulation is obstructed, the capillaries are enlarged and hemorrhage and a profuse serous discharge are marked symptoms. As the tissue breaks down, the odor becomes offensive and thicker from admixture of pus and blood cells with desquamated epithelium and fragments of cancer tissue. The anterior infiltration produces compression of the ureter, even invasion of its wall. The flow of urine is obstructed. A state of hydronephrosis exists, and where both ducts are involved, deficient elimination of urea and more or less marked coma ensues. Such an occurrence is more to be desired than deplored. The sensibilities are benumbed, pain lessened, and the termination of a deplorable condition rendered endurable.

Third, the determination of the diagnosis (a) as to the absolute presence of a malignant disease, and (b) the extent of involvement. It would, at first sight, seem unreasonable that any difficulty should occur in determining the existence of cancer, but when we come to analyze the symptoms which are supposed to speak for its presence we find some of them do not occur in every case, and that they may all be present in cases in which subsequent investigations demonstrate that malignant disease is not present. Thus, the tripod of symptoms which are supposed to characterize cancer are pain, hemorrhage, and putrid discharge.

Pain is frequently absent until an advanced stage, indeed, in some is not present during the entire course. A putrid serous discharge and hemorrhage are pretty constant symptoms in some parts of the process of the disease, but neither of these symptoms is found exclusively in cancer. Their existence, however, should be an indication for most careful investigation, even digital exploration of the uterine cavity if necessary, to arrive at certainty of diagnosis.

Recently a woman about forty-five years of age came under my observation who had been informed that she was suffering from inoperable cauliflower growth. Her age, anemic, straw-colored countenance, the odor of the discharge which pervaded the entire room, with the history of profuse and irregular flooding, fully justified the suspicion that the diagnosis was correct. Digital exploration disclosed a globular mass filling up the vagina, somewhat roughened below but smooth above, quite movable and connected with the uterus by a smooth pedicle. The lips of the cervix were found thin, smooth and free from infiltration. With such a condition, I had no hesitation in assuring the patient of possible restoration to health. This mass was, as you have suspected, a fibroid polypus which had been extruded from the uterus and had become partially carious from the constriction of the cervix. Our course, then, should not be to arrive at a hasty conclusion from the presence of suspicious symptoms, but regard their presence as an absolute indication for careful digital exploration, and in every case of the slightest doubt, microscopical investigation of sections and scrapings.

(b) The extent of involvement is determined by careful bimanual exploration. With the access of parametric infiltration, the uterus becomes fixed. The differences between this condition and pelvic exudation is determined by rectal touch. The former is nodular, roughened, and the mucous surface of rectum or vagina is immovable over the infiltrated portion and is apparently a part of it.

The existence of disease outside the cervix, with extensive infiltration, contra-indicates operation.

Fourth, the method of operation must be such as will ensure, 1st, the most complete removal of the diseased structures within the limits of healthy tissue; 2nd, the employment of such measures as shall preclude the reimplantation of cancer fragments in the newly opened tissue. The occurrence of the latter is a prolific cause of relapse.

The necessity for getting well beyond the limits of the disease should indicate, even in slight cases, the importance of the entire extirpation of the affected organ. Ablation of the uterus may be done by either the vaginal or abdominal route. By the former when the vagina is dilated and roomy, the uterus freely movable and the disease certainly limited to the uterus. Where the cervix

is deeply involved, its vaginal portion a mere shell and destroyed to the vaginal margin, the body of the uterus large, the organ but slightly movable, the vagina undilated, do the abdominal operation. The latter operation permits of more extensive removal of the parametric tissue and the more certain avoidance of injury to the ureters.

The preparation for the operation should be most careful. The vagina should be scrubbed with a solution of tincture of green soap and creolin, followed by sterilized water and then alcohol. During this process the friable tissue of the cervix is scraped away, loose fragments and ragged surfaces trimmed with scissors and the entire surface thoroughly scorched with the thermo cautery. The vagina is now washed with (1-500) alcoholic solution of sublimate and an incision made about the cervix and the edges sutured over the opening of the os. In vaginal operations the cervix is transfixed as high up as possible with a strong suture, by which the organ is drawn down, and the dissection continued under irrigation until the peritoneum is reached. The tissues are snipped with scissors, carefully watching for bleeding vessels which may be secured by ligatures (preferably catgut) or by hemostatic or large special clamps.

The operation should be completed by ligation of the ovarian arteries with the upper part of the broad ligaments. The peritoneal wound may be closed or left open and drained with gauze. As there is usually some discharge from the vagina, the open treatment with gauze tampon is preferable. Catgut ligatures are preferred to silk because the latter are likely to become infected and subsequently produce a continuous discharge until the ligatures come away. The occurrence of the discharge is a source of worry to the patient, as she fears it is an indication of returning disease.

In the abdominal procedure, the ovarian vessels are tied in mass, the bladder and ureters pushed away, the uterine arteries may be felt between the finger and thumb, and ligated, and the dissection continued until the uterus is attached only to the vaginal wall.

In cases where desirable, a good portion of the vagina may be removed with the uterus. The procedure of Werder in which the dissection is carried around the vaginal walls, some distance below the uterus, and the entire mass drawn through the vulva and removed, unopened, decreases the danger of reimplantation.

It has not been my purpose to enter upon the discussion of the details of operative procedure further than is necessary to emphasize the care which must be exercised to secure entire removal and avoid reinfection.

The study of the subject justifies the following conclusions: 1. Cancer of the uterus is a local disease in its origin which tends to invade the neighboring structures, but extends to the corresponding lymphatic glands much more slowly than in other parts of the body.

2. The chief dangers of relapse are from nests in the adjoining tissues which have escaped removal, and reimplantation of fragments during the progress of the operation.

3. The data at our command forms no accurate basis upon which to establish definite or positive prognosis.

4. From our present knowledge, we must depend upon the subsequent progress to determine the cure. If relapse occurs, it will most likely take place within the first six months. Should the patient escape two years, cure may be considered as having been established.

1703 Walnut Street, Philadelphia.

## DEATHS AFTER ABDOMINAL CELIOTOMY.\*

W. J. SMYLY, M.D.,

Gynecologist to the Adelaide Hospital, Dublin.

THOUGH the views I hold are shared by the majority of operators of the present time, and may, therefore, seem trite and lacking in originality, yet so rapid have been the advances in abdominal surgery in recent years that I think the Council of the British Gynecological Society have acted wisely on this occasion in calling a halt in order that we may see how far it is possible to fall into line, and that we may count the cost of our operative procedures. And as regards the causes of death after abdominal operations, I know that there is among the Fellows of this Society a sufficient divergency of views to render the discussion of the subject both interesting and instructive. To some, fatalities after

\*Paper read before the British Gynecological Society, April 13, 1899.

cœliotomy are attributed almost exclusively to the invasion of the peritoneum by micro-organisms; whilst to others this is of secondary importance, and to others again of no importance at all; so that the subject cannot be regarded as closed to discussion, and, remembering that a majority, however great, is not necessarily in the right, we should put aside partisan feeling, and approach the discussion with a simple desire to know the truth.

Among the causes of death after cœliotomy more or less due to abdominal condition are:

1. Shock. 2. Hemorrhage. 3. Ileus. 4. Uræmia. 5. Inanition. 6. Tetanus. 7. Embolism. 8. Sepsis.

#### SHOCK.

Though we are familiar with the symptoms it is difficult to define the nature of this condition, to say that it is "a profound expression made on the nerve centres and indicating extreme depression of the patient's vital forces" is rather vague, whilst the statement that "it is due to exhaustion of the medulla oblongata and spinal cord leading to a great reduction in the vital activity generally, and resulting from severe irritation of the peripheral ends of the sensory and sympathetic nerves," is in the present state of our knowledge too precise, nor does it include all the cases which present a common group of symptoms, but in some of which there has been no marked or prolonged nerve irritation, as, for example, those resulting from anæsthesia, hemorrhage; or one recorded by Fritsch, where an ovary was removed in five minutes, and yet for hours afterwards the patient remained in an alarming condition of the profoundest shock. It appears then that the term shock applies to a group of symptoms which may be due to a variety of causes, but is generally in direct proportion to the magnitude and duration of the operation, especially when associated with long exposure and manipulation of the intestines, to the amount of blood lost, and the cooling of the body generally. Patients already debilitated by disease, such as cancer, bleeding myomata, and granular kidneys, bear operations badly, and also those with "weak hearts." Not so much valvular disease as what is commonly understood by this term, namely, hearts with rapid and weak action, whether this be due to imperfect development, degeneration of tissue, previous illness, or nervous excitement. Failure of the heart is one of the most prominent features

in shock, and it is a matter of common experience that women who accept their position with quiet resignation are less affected by it than those of a nervous temperament, and that where anxious days and sleepless nights have preceded an operation, the heart worn out by nervous palpitation, fails to meet the extra demand which may be made upon it. Not only may this cardiac insufficiency prove directly fatal, but it may, as pointed out by Fritsch, do so indirectly; for not the circulation of the blood only but also the movement of all the fluids in the body, depends upon the heart's action. If the heart be strong, or if it soon recovers after operation, the circulation of the blood and the flow of lymph continue normal; as also the currents in the peritoneal cavity where absorption takes place with extraordinary rapidity; lymph, blood, and micro-organisms are carried away through the lymphatics into the circulation, where the latter are rapidly destroyed or rendered harmless by the blood, Nature's great antiseptic. But for this to occur three things are necessary: first, there must not be too many cocci; secondly, there must be a sound heart, and an undisturbed circulation; and, thirdly, the function of the peritoneum must be normal. Where the heart is weak, and continues so, the flow of lymph is impeded, peritoneal absorption is diminished, or ceases altogether, and a fluid collects in its cavity, forming a stagnant culture medium eminently suitable for the development of germs, which are seldom altogether absent even after the most aseptically conducted operation. There exist, then, a number of peripheral dangers which a strong heart could overcome, but which with a weak heart may prove fatal. Not only do the causes already mentioned cause depression of the heart's action, sluggish circulation, diminished absorption, and suppression of urine, but exposure and manipulation of the intestines are followed by derangement of the physiological functions of the peritoneum. These injurious effects are observable in the congested and disordered circulation, the dilated blood vessels and the reddened and lustreless peritoneum. The muscular and mucous coats participating, peristalsis becomes weak, or ceases altogether; the mucous membrane swells, and ceases to absorb much flatus forms and is not expelled; there is excessive tension in the intestines, and under such circumstances a passage of their contents into the peritoneal cavity is possible. We know that white blood cells can escape, and in them, with them, and apart from them doubtless intestinal bacteria also.

Fritsch, who has drawn especial attention to this subject, attributes these changes to air contact and pressure changes, rather than to cooling and mechanical injury; though he says they are doubtless aggravated by rough treatment of the peritoneum with unsuitable materials when the intestines are rubbed and dragged about in performing the peritoneal toilette, or where chemicals are introduced into the peritoneal cavity.

Walther, of Bern, however, from a series of experiments on animals, came to the conclusion that the injury was due to the drying qualities of the atmosphere; though he did not deny that it might in some measure be due to its coldness causing contraction of the blood-vessels and imperfect nourishment of the serosa. He, therefore, warned operators against drying the peritoneum, and recommended the use of moist compresses wrung out of sterilized salt solution. Sanger, of Leipzig, adopted these views, and Schiffer, his assistant, reported much better results, especially the earlier return of peristaltic action and expulsion of flatus since the introduction of moist asepsis. Uhlmann, however—assistant to Professor Zweifel in the same city—states in a recent publication that no apparent benefit has resulted from moist asepsis, which is inferior to the dry in other matters, especially as a hæmostatic. With these latter views I am inclined to agree, and prefer the dry compresses taken directly from the can in which they have been sterilised, excepting only those which directly cover the intestines, since the latter are liable to adhere to the dry cloths.

These cases present, according to Fritsch, peculiar clinical and post-mortem appearances. The patient awakes from the anæsthetic with a peculiar anxious feeling, embarrassed respiration, and a feeble heart. She complains that the binder is too tight. The intestine is paralysed, tympanites occurs without fever, the tongue is dry, and the pulse is fast, and grows faster and faster. The sensorium remains clear, but the weakness and anxiety increase. On the evening of the second day, or later, fever sets in, the tympany increases, the pulse grows thready, and the patient dies.

This, he contends, differs from sepsis, because an acute septic condition could not develop within an hour of the operation. Fever sets in early in sepsis, late in these cases, and the fact that one patient may die in this way, whilst others operated upon the



same day make good recoveries, proves that no serious error in asepsis has been made. There are peritoneal symptoms no doubt but not peritonitis, since there is neither fever nor tenderness and these cases often recover, whereas the acutely septic invariably die. Such patients become septic towards the end, but cardiac weakness is the prominent symptom throughout; and they die not because they are septic, but they become septic because they are dying.

The better results obtained by vaginal methods he believes to be due to the peritoneum retaining its physiological functions which are not altered by contact with the air, cooling, or pressure changes; and he holds that the excellent results obtained by Lawson Tait, Bantock, Koeberle, and others are due to rapid and careful operating, whereby central and peripheral injuries are so slight that the functions of the heart and peritoneum are little interfered with.

It may, perhaps, be wrong to consider hemorrhage in connection with shock, but there can be no doubt that a large number, if not the larger number, of cases reported as deaths from shock have been due to loss of blood during or subsequent to operation. Hemorrhage after operation may be due to the slipping of a ligature which has been improperly applied, from denuded surfaces, or torn adhesions, omental vessels, or from puncture of an epigastric artery, when inserting the abdominal sutures. The spouting of a large vessel soon gives rise to symptoms easily recognised, but a small oozing is more easily overlooked. It occasionally happens that owing to heart failure the bleeding ceases altogether, or appears so insignificant that the abdomen is closed but after the patient has been put to bed and warmth and stimulants employed, with the recovery of the circulation the hemorrhage returns, and its symptoms may be confounded with those of shock.

Zweifel has laid particular emphasis upon the importance of absolutely checking all oozing before closing the abdomen, especially where much loss has occurred during an operation. After severe hemorrhage, he says, the heart works with half-filled vessels, the demands upon it are increased, and it works with great rapidity. If the bleeding point has been secured and the circulation enclosed within itself it gradually refills; all the organs and tissues pouring serum into it. The functions are gradually re-

stored, the patient comes round by degrees and climbs step by step back to life.

But if, on the other hand, even a small hemorrhage goes on it works against the heart's action both dynamically and reflexly. When the latter improves the hemorrhage increases; as more serum flows into the circulation the blood becomes more watery, less coagulable, and thus less adapted to the spontaneous closure of the bleeding vessels. The heart working with a half-filled circulation aggravated by even a small continued loss he likens to a steam engine working a ship's propeller, which lifts out of the water, or a locomotive when the wheels slip upon the rails. The mechanism is imperfect, having lost its accustomed grip, it resembles a pump insufficiently supplied with water. It is, in fact, an empty pumping heart which authors term shock.

Late or secondary shock has been described, but I have never met with an example, and am inclined to attribute the fatal issue in cases that I have seen recorded to secondary hemorrhage, sepsis, or the giving way of sutured viscera, especially intestine.

*Preventive Treatment of Shock.*—In weak and debilitated patients with weak hearts and rapid pulse, operation should be, if possible, postponed or abandoned. The operation-room should be heated to 75 or 80 degrees Fahr., prolonged exposure of the surface of the body, but especially of the intestines, should be carefully guarded against. The loss of blood should be reduced to a minimum, and the first symptoms of depression carefully watched for and actively treated.

*Treatment of Shock.*—I think we are pretty well agreed as to the main lines of treatment in these cases. Hemorrhage should at once be controlled, and where the loss has been considerable, sterilised salt solution infused either into the subcutaneous connective tissue or directly into a vein. In my practice in the Rotunda Hospital I found an unfavorable opinion of the former, and abandoned it in favor of intravenous infusion, but the apparatus of Munchmeyer, which I employed, was imperfect compared with that used by Dr. Howard Kelly in the Johns Hopkins Hospital, by which a large quantity of solution can be more rapidly infused with a fall of six feet, and it is so strongly recommended by him that I am inclined to have recourse to it should the occasion occur. In all cases of shock, whether due to loss of blood or other causes, the patient should be placed in a warm bed

between blankets with her head low, heat should be applied by means of hot water bottles, enemata of hot saline solution and stimulants administered. The best enema in such a case is, according to Dr. Kelly, one containing two ounces of brandy, twenty grains of carbonate of ammonia, and hot water or beef tea to eight ounces. At the same time brandy, ether, and strychnine are administered hypodermically. Opinions differ with regard to morphia, but I think its use should be restricted to cases in which pain is an important factor in the nervous depression. Excepting in cases where loss of blood has been considerable, saline infusion is of little value, though in some cases of protracted shock, it might, as Mr. Watson Cheyne has pointed out, prevent coagulation of blood in the pulmonary vessels, a recognised cause of death under such circumstances.

#### ILEUS.

Ileus is one of the greatest disappointments that an abdominal surgeon encounters. I have lost two patients from this cause during the past year, one twelve months and the other six years after operation. The former occurred in England and nothing was done; the other came into hospital on the sixth day after obstruction, too late to save her life. Excluding cases of paralysis due to peritonitis, ileus is generally due to adhesion of intestine to raw surfaces, either the abdominal wound, the stump or pedicle, omentum, or surfaces denuded in enucleating tumors or breaking down adhesions, constriction of bowel by bands or from a coil of intestine slipping through a hole in the omentum, kinking of intestine or volvulus. Cauterised surfaces and those deprived of epithelium by abrasion have been blamed for this accident, but this has been denied by others and it is doubtful whether such injuries would cause adhesion unless deeper structures were destroyed. It has also been stated that septic infection is necessary, but experiments have shown that this is not the case, and that with the most rigid asepsis adhesions, as a rule, take place. When intestines are long exposed and much manipulated, they undergo changes to which I have already alluded, and adhere together. Walthard found that where the peritoneum had been long exposed the superficial epithelium perished, and an inflammatory demarcation formed between the dead and living tissues. If two surfaces thus affected remained in quiet contact they adhered. If

they were not so left fibrous changes only occurred, nor would a surface so effected adhere to a normal one. Sänger, as I have already mentioned, adopted these views, and attributed some cases of fatal ileus to the use of dry asepsis; but Uhlmann states that in a number of cases in which the abdomen had to be opened a second time in Zweifel's clinic they always found adhesions to the wound, to the stump, or to places denuded of peritoneum, but never between coils of intestine that had been exposed to the air, and I think that this will be found to coincide with the experience of most operators. The early diagnosis of this complication is of the utmost importance, but unfortunately this is often impossible. Where the symptoms set in suddenly with violently paroxysmal pain in a localised position, where the peristaltic action of the intestine can be seen and felt through the abdominal wall, and the patient lies prostrated between the attacks bathed in cold perspiration, where neither flatus nor fæces are expelled after energetic efforts to procure evacuation, where vomiting sets in after the second or third day, and the abdomen becomes distended, an error is scarcely possible, but such a stormy onset is exceptional, and most of these symptoms are simulated by other conditions. The obstruction may even be incomplete, and the bowels may be evacuated at intervals, and yet the patient may be lost. In any case, active measures should be at once employed to induce the bowels to act, the stomach should be washed out, and copious enemata administered with a long tube, and where the stomach can tolerate it calomel, Glauber's or Epsom salts administered. Should these measures fail, the abdomen should be reopened without further loss of time. The earlier the gut is freed the better is the prognosis. As to prophylactic measures, Trendelenburg's position is one of the most important, since the bowels are out of the way and are not disturbed, but especial care must be taken when the patient is restored to the horizontal in arranging the intestines in their normal position, and seeing that they preserve their natural relation to the omentum. Coating raw surfaces with collodium has been recommended, and Martin, of Berlin, introduces a sponge soaked in sterilised oil, but most operators attach more importance to drawing down the omentum between the abdominal wound and the intestines, and as far as possible covering all raw surfaces with peritoneum.

## THROMBOSIS.

Thrombosis occurs from septic infection, or from prolonged pressure of pelvic tumors upon veins, or sluggish circulation due to the quiet recumbent posture or the change in the intra-abdominal pressure due to the removal of large tumors. As thrombus is a potential embolism, and as it may be set free even at a late period, patients should be cautioned against violent efforts or straining for some time after an abdominal operation. I lost a patient from this accident during the third week after operation; she had been sitting by the fire talking to the other patients, and was in the act of pulling off her boots when she suddenly was seized with a feeling of suffocation, precordial anxiety, gasping respiration, cyanosis, and died in a few minutes.

Of *Tetanus* I have had no personal experience.

## PERITONITIS.

A question of much importance is whether peritonitis is always septic. Many would answer this question in the affirmative, but there is much to be said on the other side. There is a condition called traumatic or plastic peritonitis. It is best marked in cases where the intestines have been long exposed and much manipulated, and where wide areas of adhesion have been separated. In the worst forms of this affection there is vomiting, severe pain in the lower abdomen, tympanites, tenderness on pressure, accelerated pulse, and elevation of temperature. Death may result in such cases from pressure of the distended intestines on the diaphragm or from ileus. The treatment of this condition recommended some years ago by Mr. Lawson Tait, namely, free purgation, is, I believe, at the present time the recognised method. The non-infective character of many of these inflammations has been proved by Dr. Howard Kelly, who, when obliged to reopen the abdomen to relieve obstructed bowel, found extensive union between adjacent peritoneal surfaces, but these cases failed to show any kind of micro-organisms in the peritoneal cavity, and yet the evidences of the pouring out of a plastic lymph with the subsequent formation of adhesions were abundant.

## SEPTIC INFECTION.

I now come to the septic infection, the most important part of our subject, including the germ theory of disease, yet how can I deal with it in such an assembly as this? What can I add to all that has been already said and written upon the subject? The

part played by living organisms in the production of disease has been most firmly established by "many infallible proofs," and appears to me as certain as the law of gravitation or the shape of the earth. I shall not therefore try your patience by repeating the arguments now upon which the germ theory is based, nor shall I describe in detail the various conditions to which the introduction of such organisms to the human body during abdominal operations may give rise. I would rather devote the few remaining moments allowed to me in considering how best their entrance may be prevented, and the effects of such contamination treated.

Some who place their faith in procuring absolutely aseptic conditions spare no pains in attaining this object, whilst others regard such extreme precautions as superfluous, and laugh at those who practice them as extreme ritualists; some even discarding all precautions excepting cleanliness, and attributing their success to perfect technique and skill in operating. For myself, I must confess that I am a ritualist. Since deaths from infection still occasionally occur, we cannot flatter ourselves that we have reached perfection, though even at present such fatalities are more often due to imperfection in carrying out already acquired knowledge than in the lack of reliable information. Most of us have, I imagine, passed antiseptic to aseptic methods in the treatment of wounds; the former method went too far, in that fresh wounds and healthy peritoneum were treated as if they were septic, whilst on the other hand, chemical agents were not absolutely efficient in the prevention of infection. The present aseptic treatment consists essentially in perfect cleanliness, and whatever others may say I have no hesitation in stating that the doctrine of cleanliness originated with and has been based upon the teaching and practice of Lawson Tait and Bantock. Years ago, whilst most of us were practicing antiseptic methods, they, in the face of bitter opposition, insisted upon the importance of perfect cleanliness, and pointed out the injurious effects of chemical substances in irritating and poisoning the tissues. And at the present time we differ from them only in the meaning of the word *perfect*, for, whilst they are satisfied with ordinary cleanliness, we strive after and in a great measure obtain not only macro-, but also microscopic, cleanliness. By perfect asepsis, then, we understand that everything which comes in contact with the field of operation must be absolutely pure. Everything includes not only the operator and his assistants, his instruments and dressings, but also

the air and water. An operation may be carried out aseptically in any ordinary room, but this is achieved with great difficulty and risk, so that, in my opinion, so serious a proceeding as cœliotomy should, except under peculiar circumstances of emergency, always be performed in a special apartment so constructed that absolute cleanliness can be insured with pure air free from draughts, ample supplies of pure water and good light, and heated to about 80 degs. F. The operating theatre in the Rotunda Hospital is divided into two parts by a glass screen, in the first of which are placed the basins, sinks, instrument cases, sterilisers, and platform for spectators, all of which are indispensable, but would be difficult to clean with sufficient ease and rapidity, especially where several operations have to be performed in succession. Their absence from the inner compartment enables its furniture to be so simple that it can be thoroughly hosed out in a few minutes.

A pure atmosphere, free from draughts and dust, and uncontaminated by spectators, is obtained by its complete isolation, its simplicity of construction, and the cleanliness and dampness of its walls. Whilst the high temperature of the inner compartment enables us to dispense with blankets, maintains the patient's vitality, lessens shock, and dissipates mist, the outer compartment is so cool that the spectators, though dressed in their ordinary clothing, suffer no inconvenience.

Lastly, it enables the spectators to approach close to the operation without any risk of disturbing the operator or meddling with his arrangements.

Where an operation has been carried out with thorough aseptic detail and hemorrhage completely arrested, drainage, one of the most important aids to success in former times, is now but rarely needed, but can never, I fear, be entirely abandoned.

With regard to the after-treatment of septic cases, I shall only state that I place most reliance upon alcohol; of antistreptococcic serum I have had but little experience, and that of a not very favorable kind. The reopening of the abdomen and thorough washing of the cavity I view in a pessimistic manner, though Howard Kelley speaks of it with approbation. The chief difficulty is diagnosis, for when this is clear it is generally too late to interfere.

In conclusion, I may epitomise these somewhat fragmentary remarks with the advice of Doyen, *Operer vite et bien.*—(*The Scalpel*, May, 1899.)

## AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-Fourth Annual Meeting, Held in Philadelphia, May 23,  
24, and 25, 1899.

JOSEPH TABER JOHNSON, M.D., WASHINGTON, D. C., PRESIDENT.

The Surgical Treatment of Acute Puerperal Sepsis with Special  
Reference to Hysterectomy.

## Original Abstract.

HIRAM N. VINEBERG, M. D., NEW YORK.

THE reader began by asking what clinically constitutes *acute* puerperal sepsis? Some hold that the term "acute" should be applied only to those cases that set in with severe symptoms during the first three days of the puerperium, and which usually terminate fatally any time between the fifth and tenth day. Cases protracted beyond that period they would designate as "chronic."

A truer definition, according to the reader of the paper, would be an infection that takes place shortly before, during, or immediately after labor, that manifests itself by symptoms during the first week of the puerperium, and in which the symptoms persist continuously, with variable severity, until the disease ends in death, in a cure, or passes into a chronic state. There is no desire on the part of the writer to split hairs on the subject of definition. The practical question after all, is to determine whether *all* fatal cases of acute puerperal sepsis run their course within a given period (five to ten days). One's own experience and a superficial glance at the literature on the subject ought to convince one that such is far from being the case. The writer collected at random from the literature of the past few years thirty-eight cases in which death occurred from the eleventh to the fifty-fifth day of the puerperium, showing the average of twenty-three days as being the period of a fatal termination. Among these there were ten cases of septic peritonitis (of all puerperal lesions the most rapidly fatal) in which death occurred from the eleventh to the twenty-eight day of the puerperium, or showing an average of over fifteen days.

The writer does not agree with those who hold that once



systemic infection has set in, surgical intervention can do no good. They maintain that the patient will die, operated upon or not. This is in direct contradiction to daily experience with sepsis arising in other parts of the body, and that arising in the parturient canal obeys the same laws as that elsewhere. But the human economy has its limitations in its power of resistance to bacterial invasion, and this very circumstance forms one of the strongest arguments in favor of timely surgical intervention. Remove a uterus, the walls of which are a breeding place for bacteria, and the patient may get well, though she shows all the signs of systemic infection; fail to do this and it is more than likely that the reinforcements of the enemy from the reserve army in the uterus will, in time, destroy everything before it.

It is the writer's custom when first called to a case of acute puerperal infection to make a very thorough inspection of the whole lower parturient canal, in order to determine the presence or absence of any wounded surface. If any is found, and it shows an unhealthy appearance, it is treated on the general surgical principles of free drainage and frequent irrigation with some antiseptic solution.

If it be found that the site of infection resides in the uterus, that organ is subjected to a curettage under narcosis. The curettage is followed by frequent intra-uterine irrigations if the septic manifestations do not promptly subside. This is best carried out by leaving two rubber catheters within the uterus.

The advice frequently given that in curetting a septic uterus, care should be taken not to curette deeper than the granulation zone, first described by Bumm, is absurd in the extreme. For how is it possible to curette the endometrium with the sense of touch, or even with the aid of sight, and avoid a structure in it that is visible only with a high-power microscope? Bumm found the granulation zone fully developed only in the milder forms of uterine infection in the products obtained by curetting the uterus. The patients from whom these observations were made, recovered, and, presumably, they were bettered by the curetting, or at all events they were not injured thereby. In the severe and fatal cases of uterine sepsis, the granulation zone did not exist at all, or was only poorly developed. The patients were not curetted, but yet they died. As the writer stated on a former occasion,\*

\*Practice of Obstetrics by American Authors. Lea Bros., 1899, p. 350.

if Bumm's observations were to guide us in our clinical work we would refrain from curetting the *mild* cases of uterine sepsis, while in the severe forms they would constitute no contraindication, for we could not destroy that which did not exist.

The majority of cases of uterine sepsis, even of the more serious type (not the so-called cases of sapræmia), will yield to curettage and intra-uterine irrigations faithfully carried out. Occasionally, however, the treatment will fail to arrest the progress of the infection, as will be manifest by the pulse and other well known signs. In the event of such a contingency, an exploratory laparotomy is indicated, one's further actions to be guided by the pathological lesions found. In the majority of these cases total hysterectomy will be necessary. The indications for such a radical procedure cannot very well be described; they must be based upon close clinical observation at the bedside. In a general way they may be stated as follows: if, despite the foregoing treatment, the pulse goes above 130 and grows weak and irregular and there are signs of a commencing peritonitis, or a deepening of the septic manifestations, and nothing is found outside the uterus to account for the symptoms, the uterus should be removed.

In making his indications, the writer seeks no aid from a bacteriological examination of the contents of the uterus, for the reason that such an examination is extremely unreliable and unsatisfactory, even in the hands of expert bacteriologists. Further, the finding of any given pathogenic micro-organism would form no aid to us in estimating the severity and probable outcome of the case.

The writer then reported briefly three cases of acute puerperal sepsis in which he performed total abdominal hysterectomy, with a recovery in each instance. In one of the cases the removed uterus was found riddled with small subperitoneal abscesses. The existence of these could not have been foretold prior to the operation, but the indications for the operation were based upon the lines laid down in the paper.

Regarding the technique, the writer favors the abdominal route, because these deeply septic patients withstand any loss of blood very poorly, and more perfect hemostasis can be carried out through a good-sized abdominal incision than through the vaginal canal.

In cases of puerperal infection, in which a fairly large collec-

tion of pus forms in the pelvic and lower abdominal cavities, the course to be pursued will depend upon their situation. If they are so situated, that they can readily be evacuated by an incision in the vagina, or by one above either of Poupart's ligaments, so that the peritoneal cavity is not entered, no time should be lost in carrying it out. But if they are so placed that they cannot be reached by either of these incisions, judicious delay (the patient in the meantime being kept under close observation) is advisable, with the hope that in time their situation will become more favorable. When such a course is not justifiable on account of the general condition of the patient, the writer makes a median abdominal incision, in order to explore the relationship of the abscess. The median incision is then closed and one is made directly over the mass and the pus evacuated without entering the general peritoneal cavity. The principal object to be aimed at in these cases is evacuation of the purulent collection, and the establishment of free drainage without taking the risk of soiling the peritoneum. For it cannot be too forcibly borne in mind that the pus in acute puerperal sepsis is highly virulent, and that the slightest soiling of the peritoneum with it is almost certain to be followed by disastrous results.

The points the writer endeavored to make in the paper were:

(1) Puerperal sepsis is wound fever or wound infection, and wound infection in the female genital canal, as elsewhere, calls for surgical measures, such as, free drainage, irrigation, and the removal, with a sharp instrument, of any debris or exudate that may form on the surface of the wound. These means failing to accomplish the desired result, ablation of the diseased organ or organs as a "dernier ressort" is indicated.

(2) In a given case of puerperal sepsis, a thorough search is to be made of the whole genital canal, in order to determine the site of the original infection.

(3) If this is situated in the uterus, curettage, drainage and irrigations are to be employed. In ninety-five per cent of the cases of puerperal sepsis nowadays met with, this plan of procedure will be all that is necessary to bring about a cure.

(4) In the remaining five per cent, roughly speaking, these measures will not be efficacious to arrest the progress of the infection, as will be evidenced by the pulse, temperature, general course of the disease, and sometimes by local signs. An ex-

ploratory laparotomy is then indicated, the further course to be guided by the pathological lesions found. In most of these cases total hysterectomy will be required.

(5) When large collections of pus form and are so situated that they can be readily reached either with a vaginal incision or with one above either of Poupart's ligaments, no time should be lost in resorting to surgical relief. When, however, they are not so favorably situated, judicious delay is advisable, with the hope that, ultimately, the pus may be evacuated without the risk of soiling the general peritoneum.

Such a course not only averts the risks to which the patient would be exposed by a more radical procedure, but affords her an opportunity of being restored to health with the conservation of her sexual organs.

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#### Crural Thrombosis Following Aseptic Cœliotomy.

##### Original Abstract.

HENRY C. COE, M.D., NEW YORK.

PHLEGMASIA, a well-recognized sequel of cœliotomy for pelvic affections, is probably the most annoying of the late complications, especially when it attends a smooth convalescence in a simple case. After a severe septic operation it is not so unexpected, though remarkably infrequent considering the anatomical conditions.

Nearly all works on gynecology refer to it as being of undoubted septic origin, hence a reproach to the operator in that it implies some flaw in technique. The writer has not been satisfied with this theory, especially in the class of cases considered in this paper. These include simple operations in which no focus of infection is found in the pelvis, and the asepsis technique has been apparently careful and complete. The phlegmasia is accompanied by mild, general disturbances, no well-marked septic symptoms, and soon clears up, without leaving any traces. The most serious result is the protraction of what was expected to be a rapid and uneventful convalescence, and the persistence, sometimes for several weeks, of stiffness and œdema of the affected limb.

Review of the literature, especially papers by Vaquez, Wyder, Mahler and Singer, shows that they recognize clearly an aseptic

form of thrombosis, and report many cases. The observations of the last three gentlemen have to do principally with thrombosis of the pelvic veins, resulting in fatal pulmonary embolism. They show conclusively that thrombosis in the veins of the stumps after salpingo-oöphorectomy and supravaginal amputation is more frequent than is ordinarily supposed, and may lead to the most serious results as late as the seventh, tenth, or even twenty-first day after cœliotomy, the patients presenting no evidences of trouble until embolism and sudden death occur.

Cases reported by the writer:

CASE I.—Removal of adnexa, with internal shortening of the round ligaments, and removal of diseased appendix. Normal convalescence until the second week, when thrombosis of the left femoral vein developed, with moderate œdema. No rise of temperature above 100 degrees, and no constitutional symptoms. Perfect recovery of use of limb within six weeks.

CASE II.—Removal of right ovary and tube, with adherent appendix. Left ovary and tube normal. Temperature rose to 103 degrees the night of the operation, without local or general evidence of sepsis. Fluctuation of temperature for several days, when left crural phlegmasia developed, with much pain and œdema. A small painful induration was felt at the base of the left broad ligament, which soon disappeared. Patient up in the fourth week, but did not recover entire use of limb for two or three months.

CASE III.—Small, non-adherent ovarian cyst on left side, with adherent appendix the size of the thumb. Both removed, and conservative operation done in right ovary. Afebrile convalescence till eighth or tenth day, when a mild phlegmasia developed in the left leg, with slight rise of temperature and some constitutional disturbance. Patient up during the fourth week, and entirely well three weeks later.

CASE IV.—Dermoid cyst right side, of 18 years' standing. No adhesions and operation simple. Convalescence entirely afebrile until end of second week, when temperature rose to 100 degrees and thrombosis of the left femoral was discovered. Patient went home on the twenty-sixth day, contrary to advice. Seen two months after operation and was well, except slight stiffness of limb.

CASE V.—Small non-adherent cyst on right side, with cystic

ovary on left. Both removed, as uterus was large; patient near the climacteric and subject to profuse menorrhagia. No rise of temperature till tenth day, when it reached 100 degrees and there was severe pain in the left groin. Temperature never above 102 degrees and pulse below 90. No œdema. Thrombosis of the left saphenous. Painful induration at site of left stump. Patient in bed for five weeks, and well (except stiffness of the leg) a month later.

CASE VI. (Unusual case).—Trachelorrhaphy and colpoperinorrhaphy. Normal convalescence till third week, when patient developed phlegmasia on left side. No pelvic exudate and temperature below 100. Marked œdema and pain. Stiffness and œdema persisted for several months. A rare complication of a simple trachelorrhaphy.

In all these cases strict asepsis was maintained, catgut ligatures were used and no cause for the complication could be discovered. There was no suspicion of sepsis, except possibly in Case II.

Deductions:

1. It is fair to assume that crural thrombosis developing after an aseptic operation, in which no focus of infection is previously present within the pelvis, accompanied by slight and transient elevation of temperature and no marked constitutional symptoms, may be due to an aseptic thrombus.

2. Sepsis cannot be absolutely excluded, however, especially in those cases in which there is evidence of primary thrombosis of the vessels in the stump.

3. The cause of this condition in healthy subjects is not clear, but it is more likely to be due to extension of thrombi in the pelvic veins than to a primary thrombus in the crural vein, as in certain general diseases.

4. As the cause is unknown it is impossible to lay down any rules with regard to prophylaxis.

5. The prognosis is good, but the danger of pulmonary embolism should not be lost sight of.

The Remote Results of Shortening the Round Ligaments and  
Hysteropexy by Vaginal Section.

Original Abstract.

HENRY T. BYFORD, M.D., CHICAGO.

THE writer reports upon thirty-one cases of vaginal section for shortening the round ligaments and suture of the uterus over the bladder. In his earlier cases he did not draw the ligaments tight enough, and had one failure and two imperfect results. In his later cases he drew the ligaments tighter and attached the fundus higher up over the bladder and had only good results.

He opened the abdomen in three cases some months after the operation and found that the adhesions had held, but that they could be easily separated by the finger. One labor at term twenty-five months after the operation was reported, with a normal confinement of a large, healthy child, and a normal position of the uterus two and a half months afterward.

The steps of the operation are as follows:

T-shaped incision in anterior vaginal wall. Separation of bladder from uterus. Breaking up of adhesions and attention to the adnexa. Drawing down of fundus of bladder and suturing of the fundus uteri above it with formalin catgut at two points about an inch apart. Drawing down the round ligaments and uterine horns into the vagina, and suturing them as taut as possible to the uterus just above the uterine insertion. As he finishes the suturing of the ligament he throws the same catgut thread around the neck of the loop thus formed and ties it securely.

The method was not advocated as a substitute for Alexander's operation, but only for those cases in which there were adhesions to be separated or the peritoneal cavity to be opened for other reasons.

The paper concluded with the following words:

"In many of the cases the patients were virgins and the operations difficult, but it was always possible to complete them. I consider the result fully as good as those of Alexander's operation, and as contraindications are more easily detected when the peritoneal cavity is open, there is less liability to failure from that source."

## Vaginal Coeliotomy, With Report of Cases.

## Original Abstract.

A. LAPHORN SMITH, B.A., M.D., M.R.C.S.

English Fellow on American and British Gynecological Societies; Professor of Clinical Gynecology in Bishop's University, Montreal; Surgeon-in-Chief of the Samaritan Free Hospital for Women; Gynecologist to the Montreal Dispensary; Surgeon to the Western Hospital.

ALTHOUGH the author's experience has been limited to ten cases, yet these have been such instructive ones that he has been enabled to arrive at the following definite conclusions as the relative merits of and indications for vaginal coeliotomy:

1. Vaginal coeliotomy is indicated in retroversion with fixation, in minor diseases of the ovaries and tubes and in small fibroid tumors of the uterus. But in the author's experience the vaginal method of freeing the retroverted adherent uterus is, on the average, more difficult than the abdominal method; and vaginal fixation is not so reliable in curing the retroversion and prolapse as is ventrofixation.

2. If the uterus be movable and there are no adhesions to be broken up, one is not justified in opening the peritoneal cavity either by the abdomen or the vagina, in order to shorten the round ligaments. In such cases Alexander's operation is easy, quick, safe and more reliable (the author has had no failures in his last hundred cases).

3. For the removal of pus tubes the operation by the vagina is more difficult than by the abdomen in all cases, excepting those in which the uterus is removed at the same time. When the uterus is split in halves and each half is removed with its corresponding ovary and tube, and when clamps are used, the vaginal operation is easier than the abdominal, in which ligatures are employed. The vaginal operation is a little safer on account of the drainage which it affords, but, on the other hand, it offers more risk of injuring the ureter. The author is opposed to the removal of the uterus even when both ovaries and tubes have been removed, owing to the bad moral and physical results, and he is opposed to the use of clamps as compared with ligatures because, although easier and quicker, the clamps prolong the convalescence, owing to the bruising of the nerves in the broad ligaments.



4. For the removal of chronically inflamed ovaries and tubes, vaginal cœliotomy has the following decided advantages: (a) It is less dangerous because the intestines are not exposed to the air or to bruising by the hands or infection through diseased tissues passing over them, so much as when the latter are removed by the abdomen. (b) Vaginal cœliotomy is less painful, the incision in the vagina causing almost no pain; while the abdominal incision and stitching are exceedingly painful. In vaginal cœliotomy morphine is rarely required; in abdominal cœliotomy it is cruel to deprive the patient of it, although we know that her chances of recovery are lessened and her convalescence is prolonged by its use. (c) There is no tell-tale scar after cœliotomy, which is sometimes a matter of great moment to young single women who intend to marry. The presence of the scar has to be explained and the patient is suspected of having been unfitted for marriage by the removal of both ovaries, when in reality one or both ovaries remain. (d) The danger of hernia. Although the author has had no case of hernia during the last three years owing to his method of suturing and leaving in the silk-worm gut either permanently or at least a month, he considers this accident entirely preventable, yet for those who meet with it, its possibility should have great weight in balancing the merits of the two operations. There is no hernia after vaginal cœliotomy.

5. Much good conservative work on the ovaries and tubes and even on the uterus can be performed by vaginal cœliotomy with almost no risk or pain to the patient. The uterus and appendages can be brought out at the vulva through an opening in the anterior vaginal wall, and cysts can be excised or burned out; one-half of the ovary can be amputated and the remaining bivalvular flaps neatly brought together with fine silk or catgut; the closed tubes can be opened, or a piece of the pavilion removed and a probe passed into the uterus, and the mucous and peritoneal layers of the remainder of the tube brought together with interrupted catgut sutures; and small fibroids, not larger than the normal uterus itself, can be cut out and the hole in the wall of the uterus closed with two or three rows of fine sutures. But it is very dangerous to open up closed tubes as long as there is any active inflammation or infection going on, because by so doing we break down the wall of defence made by nature around the infected tubes to save the general peritoneal cavity from invasion.

6. Tubal pregnancy before rupture, and not later than the sixth or eighth week, can be readily removed by vaginal celiotomy; the author had one successful case compared with twelve successful cases by the abdomen. But vaginal celiotomy is contra-indicated when the pregnancy has advanced to twelve weeks or has ruptured into the abdomen. In several of the author's cases the vermiform appendix was diseased and adherent to the tube, for the removal of which abdominal celiotomy was necessary. In several other of the author's cases the abdomen was full of clots as high up as the liver, and the foetus was floating among the bowels higher than the umbilicus. These cases could not have been successfully operated by the vagina.

7. In general terms all cases in which the trouble is small in size and located low down, can and should be operated by vaginal celiotomy, while everything large and located high up should be reserved for abdominal section.

260 Bishop Street, Montreal.

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DR. HUNTER ROBB, Cleveland, read a paper entitled SIXTY-FIVE CONSECUTIVE ABDOMINAL SECTIONS WITHOUT A DEATH; WITH CLINICAL AND PATHOLOGICAL REPORTS.—The cases on which the paper was based were entirely unselected. After describing the organization of the surgical staff and the preparation of the patient, he called attention to a matter often overlooked, to the great detriment of the patient—i. e., the use of proper clothing to protect against chilling. It was his custom to use gauze pads instead of marine sponges, and to dust the wound with a powder composed of one part iodoform and seven parts boric acid. When nausea and vomiting persisted after the first or second day, it could often be controlled by giving two tablespoonfuls of very hot water containing ten grains of bicarbonate of sodium, and repeating this at intervals of an hour. It was exceptional for him to use morphine after operation. The bowels were opened by calomel, assisted by enemas of glycerine and soapsuds. The immunity from serious sepsis in this series of operations he attributed to the technique, laying special stress on the use of saline solution in the abdominal cavity and the wearing of rubber gloves while operating. In only one case had drainage been used. Suppuration of the abdominal wound had occurred

three times. The average stay in the hospital had been thirty-two days.

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DR. J. WHITEIDGE WILLIAMS, Baltimore, read a paper entitled A CASE OF SPONDYLOLISTHESIS, WITH DEMONSTRATION OF THE PELVIS.—The patient was a colored woman, twenty-two years of age, who had advanced in pregnancy nearly to term. The abdomen was very pendulous, and there was slight asymmetry of the hips. There was also a slight scoliosis of the dorsal and lumbar vertebræ. On vaginal examination, what was supposed to be the sacral promontory was felt as a sharp angle, but on further investigation this proved to be the fifth lumbar vertebra dislocated downward. The diagnosis of spondylolisthesis had accordingly been made. This woman had fallen on the ice, striking her back, some years before. She had also passed through a previous labor without special incident, so that it had been decided that symphyseotomy would probably be the proper procedure in her approaching confinement. This operation had been resorted to on the occurrence of labor, and a living child was delivered, but the mother had not done very well immediately after delivery. She had suddenly expired a few days later, presumably of pulmonary embolism. On post-mortem examination, the narrowest part of the superior strait was found to measure 7 cm., and there was considerable lateral narrowing at the inferior strait. The maximum contraction, however, corresponded, not to the sacral promontory, but to a point between the posterior margin of the symphysis and the lower margin of the third lumbar vertebra. Ankylosis existed between the superior articular process of the sacrum and the inferior articular process of the last lumbar vertebra. The articular processes were separated 2.5 cm. Dr. Williams said that Franz Neugebauer had been the first person to point out clearly the cause of spondylolisthesis, i.e., that it resulted from a lengthening and separation of the articular processes of the vertebræ. Although in his earlier writings the view had been expressed that the condition was caused by fracture, he subsequently retracted this statement, and declared that spondylolisthesis was of congenital origin. In the case just reported, the congenital origin seemed apparent, the fall on the back having been only an exciting cause. When Neugebauer had published his first article, in 1881, he had been able

to collect only twenty-six cases of spondylolisthesis, but at present there were one hundred and twenty on record. The present case was the first one in this country that had come to autopsy, in which the nature of the condition had been ascertained, and the second one in which symphyseotomy had been performed. While it was evident that symphyseotomy was not the operation of election in these cases, and that in the present instance Cæsarean section should have been done, it should be stated, in extenuation, that those in attendance had been misled by the assertion of the patient that she had already been delivered, without difficulty, of one living child.

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DR. J. WHITRIDGE WILLIAMS, chairman of the committee, presented the formal REPORT OF THE COMMITTEE ON ANTISTREPTOCOCCIC SERUM IN PUERPERAL SEPSIS.—He stated that it was necessarily a preliminary contribution, based on a critical review of the literature, as the experiments undertaken by the members of the committee had not been completed. The history of anti-streptococcus serum dated back to February 23, 1895, when Marmorek had presented his first communication. This investigator had demonstrated that the virulence of streptococci could be preserved by cultivating them in a medium composed of two parts bouillon and one part human blood serum. He had also shown how immunity to streptococcus infection could be secured. A few weeks later Marmorek had presented a second communication, in which he had stated that he had used his serum in forty-six cases of erysipelas, with the most beneficial results. He had also treated sixteen cases of puerperal fever by this method. In seven of the latter there had been a pure streptococcus infection, and all of these had ended in recovery. In the four cases in which the streptococci had been associated with the colon bacilli, death had occurred. Marmorek had concluded that the first essential in carrying out this treatment was the determination, by bacteriological examination, of the presence or absence of streptococci, and that it was equally important that the treatment should be instituted quite early. In April, 1896, Charpentier had reported forty additional cases of puerperal infection, in which the antistreptococcic serum had been employed. Of this number, only twenty-four had terminated in recovery, but it should be said five of these had been moribund when first seen. This would

make the mortality 35.25 per cent. All of these cases had, however, not been examined bacteriologically, and of the sixteen in which a streptococcus infection had been demonstrated, seven had been fatal. These poor results, accentuated by one or two cases in which the physicians in attendance had been of the opinion that death had been hastened by the use of the serum, had led most physicians to believe, with Charpentier, that the method had but little value. The committee had collected, up to the present time, 354 cases in which the antistreptococcic serum had been used. In France, twenty-seven observers had reported 214 cases; in Germany, one observer had reported 15 cases; in Great Britain and this country, 125 cases had been reported. Of these 354 cases, 281 had ended in recovery, so that the mortality was 20.6 per cent—certainly not a very encouraging showing. Eighteen French and German observers had treated 70 cases in which the existence of a streptococcus infection had been demonstrated. Of this number 24 had been fatal, giving a mortality of 34 per cent. Sixteen English and American observers had treated 42 streptococcus cases with the serum, with the result that 13 were fatal, or a mortality of 31 per cent. Combining these cases, one had 112 streptococcus infections treated with the serum, with a mortality of 33 per cent. In the series of 242 cases treated with the serum, in which no bacteriological examination had been made, the mortality was 14 per cent. This low mortality was evidently to be explained by the assumption that many cases not due to streptococcus infection had been included, and that, in all probability, they would have ended in recovery without the serum treatment. It was probable that not more than one-third were streptococcus infections. Assuming this to be the case, and that all the deaths occurred in this group, one had 81 cases with 36 deaths, or a mortality of 44 per cent. Seven observers had reported 196 cases, in 55 of which the presence of streptococci had been proved by bacteriological examination. The mortality in these 55 cases had been 36 per cent, whereas the mortality in the remaining 141 cases had been only 8.5 per cent. The work of the bacteriologists seemed to show that while there were marked differences among the streptococci, these were not sufficient to admit at present of dividing them into distinct groups. Many experimenters stated that while a serum could be prepared which would be potent against that special variety of

streptococcus, it would be found practically inert when used to combat infections by other streptococci. The speaker said that he believed Marmorek's work had been useful as far as it had gone, but his results had been obtained with a special form of streptococcus derived from a case of angina. It was evident, therefore, that the results were very contradictory, and that if this serum was to be of avail it must be possible to identify the different varieties of streptococci, and treat each with a special serum. As this would be practically impossible, both at the bedside and in the laboratory, the outlook for the antistreptococcic serum treatment was quite discouraging. A statistical study showed that the results obtained were not, so far, any better, if as good, as those obtained without it in the treatment of puerperal fever. The results in experimental laboratories had been exceedingly contradictory. Our only positive knowledge on the subject was that it was possible markedly to increase the virulence of streptococci. Dr. Williams said that during the past three years he had seen 93 cases in which, during the puerperium, there had been a rise of temperature to 101° or 102° F. In all of these cases cultures had been taken from the uterine cavity, under suitable precautions, and in 23 there had been a streptococcus infection. Of this number, 18 had been pure infections with the streptococcus. All of these 23 cases had been kept on the verge of strychnine and drunkenness. After a thorough irrigation of the uterine cavity with sterile salt solution the uterus had been left severely alone. Although many of these women had been very severely ill, only one had died, giving a mortality of 4.35 per cent. The great point in the treatment was not to use the curette in these cases. It was evident from the foregoing that the treatment employed by the members of the committee had had little or no influence on the results. The high mortality credited to the antistreptococcic serum was probably to be explained by the use of the serum in only a comparatively small number of very severe cases. Another explanation was to be found in the custom of the French observers to curette these cases of streptococcus infection. It should be stated that the serum exerted no deleterious effect on the patient; consequently its trial was justifiable, but there was no guarantee that its use would materially improve the results already secured in the treatment of streptococcus infection by other methods.

DR. HOWARD A. KELLY, Baltimore, read a paper entitled **THE AVOIDANCE OF INFECTION FOLLOWING THE OPERATION FOR COMPLETE TEAR OF THE RECTO-VAGINAL SEPTUM.**—He said that the classical method of treating complete tears of the perineum, while in general satisfactory, was occasionally just the reverse. A recent case had led him to consider as an essential part of the treatment the dissection and direct suture of the cut sphincter. It was not infrequent to meet with cases having perfect control both of fæces and gas, and yet there was a complete tear of the perineum. The only explanation of this was that the internal sphincter was responsible for the control. He had, therefore, adopted the plan of separately dissecting and suturing the internal sphincter. This method of separate suture, however, rather added to the danger of infection. With the finger in the bowel, a curvilinear incision was made, and a flap like an apron turned down so as to expose the fibres of the internal sphincter. Three or four buried figure-of-eight sutures were used to bring together the sides. This form of suture took the place of many more sutures of the interrupted variety, and they effectually prevented the formation of the usual "dead space" in the centre, so often responsible for infection and breaking down of the tissues. The fibres of the internal sphincter were caught in these sutures, and brought together. The external sphincter was likewise sutured, and the denuded vaginal surface stitched up in the manner usually adopted for contracting the vaginal outlet. This having been done, the "apron" flap would be found approximated and projecting from the anus as a puckered mass of tissue. By this method of operating the surface which had been in the rectum was thrown entirely outside of the anus, so that the wound surface faced in the opposite direction to the fecal mass. He had operated upon three cases by this method, the last one only a day or two ago. The first two cases had yielded an absolutely perfect result. His first operation of this kind had been performed in December, 1897.

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DR. B. BERNARD BROWNE, Baltimore, read a paper entitled **INVERSION OF THE UTERUS, WITH A REVIEW OF THE VARIOUS OPERATIVE PROCEDURES FOR ITS TREATMENT, AND A DESCRIPTION OF THE WRITER'S OPERATION FOR CHRONIC INVERSION.**—He said that he had been unable to find a record of any case of chronic

inversion of the uterus that had been cured by operation prior to 1847. In that year, one of sixteen months' duration had been successfully reduced. The frequency of this accident was hard to determine because of the great variations in different sets of statistics. Thus, according to the figures of the Rotunda Hospital, during a period of one hundred and twenty-three years, one hundred and ninety thousand eight hundred and thirty-three women had been delivered there, yet only one case of acute inversion had been observed. In exceptional cases the process of inversion undoubtedly began in the cervix. Among the causes of this complication were, the upright position during parturition, a short cord, distention of the uterus by liquor amnii, severe coughing, blows on the abdomen, fatty degeneration of the uterus at the placental site, intrauterine polypi, and lifting heavy weights while menstruating. The case of chronic inversion that had come under his observation was that of a woman of twenty-eight years, who had had hemorrhages for six years following a confinement. A tumor had been discovered in the vagina, but had been thought to be a fibroma. When seen by him in 1883 the diagnosis of chronic inversion had been made, and the more usual methods of treatment had been tried, but without success. He had finally succeeded by making an incision into the uterus, dilating first with a steel dilator and afterward with Hanks' rubber dilators, and then sewing up the opening made, and reducing the inversion.

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DR. EDWARD REYNOLDS, Boston, read a paper entitled TUBERCULOSIS OF THE KIDNEY AS AN INDICATION FOR NEPHRECTOMY.—He stated that tuberculosis of the kidney was not always the destructive process that it was in other organs. When occurring primarily and unilaterally in persons in fair health it was an insidious disease, characterized by trivial symptoms often for many years. If the diagnosis could be made, and appropriate treatment instituted at this stage, it was probable that a cure could be effected. Success in the operative treatment depended upon the selection of those cases in which the disease was essentially chronic, and in which the patient's general health had remained good. Almost invariably the family history was decidedly tuberculous. By palpation of the kidney, inspection of the bladder, catheterization of the ureters, analysis of the separate samples of



urine, including a search for tubercle bacilli, and finally by inoculation of guinea-pigs with the urinary sediment, the diagnosis could be established. The enormous mortality in the past from nephrectomy in these cases had been due partly to an improper selection of cases, and partly also to the postponement of the operation until it became a last resort. In two cases of tuberculous ulceration of the bladder, local cauterization had effected a cure.

(Abstracts are from Medical Record, Vol. 55, No. 22).

## BOOK REVIEWS.

**DISEASES OF WOMEN: A Manual of Gynecology.** Designed especially for the use of Students and general Practitioners. Third edition, revised and enlarged by FRANCIS H. DAVENPORT, M.D. Published by Lea Brothers & Co. 1898.

In this new edition, surgical methods have been added to non-surgical, and thus make the volume more complete. Pathology and rare diseases are but briefly considered, and the treatment proposed is eminently practical. No wonder, then, that the book is meeting with even greater favor than the other editions.

**A TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY.** By W. S. PLAYFAIR, M.D., LL.D., F.R.C.P. Seventh American, from the ninth English edition. Published by Lea Brothers & Co. 1898.

Like the other editions which have appeared since this excellent work first came out 22 years ago, this is but an effort to keep strictly up-to-date. We do not doubt that this edition will meet with the usual approval which the profession have shown its predecessors. There are a number of fine new illustrations and the revision of the text has been most careful. The chapter on "Conception and Generation" is written by Dr. T. W. Eden.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### A CONSIDERATION OF PARENCHYMATOUS INFLAMMATIONS OF THE MOUTH AND TONGUE.

J. L. GOODALE, M.D.

(Continued.)

#### II. SUPPURATIVE INFLAMMATION OF THE MOUTH AND TONGUE.

By this term is denoted inflammations generally of a localized character whose ordinary termination is in abscess formation. Such conditions have been observed to follow injuries of the tissues, and inflammations of the lingual and faucial tonsils.

Under both circumstances, pyogenic bacteria make their way into the parenchyma, and by their development bring about the pathological alterations in the tissues.

If the inflammation is the result of an injury, the clinical history is generally as follows: There is a preliminary stage of localized soreness due to the original trauma, often so slight as scarcely to attract the patient's attention. In a case of the writer's and in a hospital case, the injury was apparently due to smoking a short pipe, the hot stem of which pressed against a particular part of the tongue. In another case the inflammation was started by the contact of a broken plate. Other causes are punctured wounds, generally with too small an orifice to permit free drainage.

After a few days of slight soreness, the part begins to swell and become tense, reddened and painful. If the tongue is affected, the movements of the organ are impeded, the tip is pushed towards the sound side, and the enlargement may become so great as to cause protrusion from between the teeth. From this stage, the process may pass on to resolution, the swelling disappearing

after one or two weeks, or may terminate in abscess formation. In the latter case, the swelling increases, and becomes more definitely limited. In a hospital case, the abscess attained the size of a pullet's egg before being opened. In one seen by the writer, an abscess on the tongue, about the size of a walnut, ruptured and evacuated its contents spontaneously. Generally, however, the condition is seen and an incision made before this occurs.

In suppurations following a primary infection of the lingual or faucial tonsils, the process is essentially similar to that just described. In the case of the tongue, however, the inflammation is generally more diffuse, and may extend through the substance of the organ to the sublingual glandular tissue, and there cause supuration. Such is a case described by Wagner where, after enormous swelling of the tongue, the sublingual glands became enlarged and painful. On incision of the glands, there was a free escape of pus. A probe could be passed through the opening several inches towards the upper and back part of the tongue. A similar case is recorded by Greene where a young man was taken with sore throat followed by swelling of the floor of the mouth and tongue. Two days later a small abscess broke in the region of the sublingual gland, discharging foul pus.

Both bacteriological and histological data regarding this condition are extremely scanty, and greatly to be desired. Several varieties of staphylococcus pyogenes have been found in the abscess contents, and probably a mixed infection generally occurs. In several instances it was noted that the pus was "foul" or "fetid," so that putrefactive micro-organisms were probably also present.

### III. PARENCHYMATOUS INFLAMMATION DUE TO THE DIPHTHERIA BACILLUS.

INSTANCES are fairly common in which an extension of the false membrane of diphtheria of the fauces has taken place upon the mucous membrane of the mouth. I find, however, but two instances in literature where the buccal structures were infected without involvement of the tonsils or pharynx. In one of these cases the process was of a superficial character, the tongue not being enlarged but covered on its inferior surface with a fibrinous false membrane, which extended to the floor of the mouth and contained bacilli of diphtheria. The dorsum of the tongue was covered with desquamating epithelium, but no membrane. There was marked salivation, the neighboring glands were enlarged, and

severe constitutional symptoms were present. Recovery followed.

The other case appeared under the form of an acute swelling of the tongue which was protruded from the mouth. Its dorsal surface was covered with a thick, false membrane, as were also portions of the right cheek and lips. Salivation and submaxillary glandular enlargement were present. The temperature was  $101^{\circ}$ . Examination showed bacilli of diphtheria in the false membrane, the diagnosis being confirmed by inoculation into guinea pigs. A free incision into the substance of the tongue was followed by escape of the blood and serum, but not by pus.

In the reports of these cases the possible rôle played by the lymphoid tissue at the base of the tongue in the process, is not mentioned. From our knowledge of the origin of infectious processes in the faucial tonsils the probability is strong that the lingual tonsil may equally well constitute the infection atrium in cases of parenchymatous inflammations of the tongue. That the lingual tonsil may be affected by diphtheria without involvement of the faucial tonsils is shown by the following case which came under the writer's observation: Male, 32, was taken one week ago with chilly sensations, sore throat and progressively increasing prostration. Examination showed the adenoid and tonsillar regions to be normal in appearance. The lymphoid follicles at the base of the tongue were swollen, reddened, each capped by a small white patch of fibrinous exudate, from which bacilli of diphtheria were cultivated. The follicles on the posterior pharyngeal wall were also swollen, reddened, and presented each a minute central white spot. The process passed off without complications. A careful examination of the lingual tonsil in parenchymatous glossitis, whether of diphtheritic or streptococcal origin, is much to be desired in all cases that may come under observation.

A case of parenchymatous inflammation of the floor of the mouth from diphtheritic infection, observed by the writer, is fully reported in the *Laryngoscope* for January, 1899.

#### IV. ANOMALIES OF CIRCULATION OR ANGIONEUROSES.

By this term is denoted a group of affections characterized anatomically by changes in the calibre of the blood vessels, dilatation of the lymph spaces, together with a varying amount of œdema arising in virtue of an abnormally high degree of irritability in the muscular tone of the blood vessels, and directly due

to especial irritations or various kinds. The duration of the lesions corresponds to that of the exciting agents, and is thus from the nature of the latter, generally short. The clinical appearances are much more striking and conspicuous than the histological changes which are comparatively simple in character.

The conditions under consideration exhibit many superficial points of resemblance with the neurotic inflammations, particularly erythema multiforme, with which they were formerly grouped. They differ from the latter, however, in important respects, notably, in the absence of histological alterations in the tissue cells of the affected part, and in the absence of evidence of specific infection.

The angioneuroses of the structures within the mouth exhibit lesions analogous to those occurring upon the skin. The phenomena of œdema are always present. In one class of cases, œdema is the most striking feature of the pathological process, while in another class the chief element consists in the circulatory disturbances in the mucous membrane. The class characterized by œdema is known as acute circumscribed œdema, or angioneurotic œdema, while that class in which superficial circulatory disturbances predominate, is termed urticaria. Both conditions may occur on any part of the soft vascular structures of the mouth.

#### *Acute Circumscribed Oedema of the Mouth.*

By this term is denoted a condition characterized in the occurrence of firm, œdematous swellings of the parenchyma of the lips, mouth or tongue, of sudden onset, acute course limited in seat to definite boundaries.

The parts of the mouth most commonly affected are the tongue and the lips. More rarely, the cheeks and the soft palate exhibit the condition, which in the latter case often extends into the larynx.

The occurrence of angioneurotic œdema of the tongue is of great interest in view of its clinical resemblance to infectious forms of glossitis. A review of the literature leads one to the conclusion that many of the cases of so called acute, catarrhal glossitis, particularly of the form known as hemiglossitis, were instances of acute, circumscribed œdema, and were not a glossitis in the sense that an actual inflammation of the lingual parenchyma existed. In several works (Butlin, Schech) mention is, to be sure, made of a glossitis from catching cold, or from obscure

nervous influences, but the attempt is not made to distinguish clinically or pathologically these conditions from others of presumably infectious origin, so that a confused conception is afforded of the nature of the conditions included under the name of acute glossitis. It is now justifiable, in virtue of several recently published reports with which my own observations agree, to attempt a separation of these conditions in a manner consistent with their etiology and pathological anatomy.

We have seen that a certain form of acute parenchymatous inflammation of the tongue owes its origin to an infection by the bacillus of diphtheria, and we have also seen that another macroscopically similar condition is brought about through infection by the streptococcus pyogenes. Still other inflammations, generally of a more localized type, and with a tendency to abscess formation, are due to an invasion of the lingual parenchyma by forms of staphylococci.

When now with these facts in mind we examine the various conditions and recorded cases which have generally passed under the comprehensive term of acute glossitis, it will be seen that a certain number bear clinically the stamp of infection. Such are the cases of moderately, rapidly or comparatively slow onset accompanied by fever, prostration, and constitutional symptoms, preceded often by a reddening or inflammation in the faucial region, exhibiting enlargement of the neighboring glands, and occurring in a large proportion of cases in individuals already the subject of disease, or in those exposed to depressing or infectious influences. Leaving, therefore, such conditions out of present consideration, we shall find left a number of acute, lingual enlargements exhibiting in common the characteristics of extremely rapid onset, generally a febrile course, slight or no constitutional symptoms, with a swelling at times sharply limited to one-half of the organ, or accompanied by a herpetic eruption in the immediate neighborhood, unattended by glandular enlargement, and terminating abruptly. These swellings stand evidently in some relation to a disturbance of the nervous system. A consideration of their characteristics shows, furthermore, that the special part of the nervous system involved is the vasomotor, and that the condition is therefore to be included in the group of affections known as angioneuroses.

The swellings may affect both sides of the tongue simultaneously (Totheric's case), or be limited to one-half of the organ

(Güterbock), or finally, it may involve one-half at the beginning, and suddenly shift its seat to the opposite half. In a few instances, an herpetic eruption, together with neuralgia, has accompanied the swelling, particularly in cases of unilateral enlargement, so that the picture is present of angioneurotic oedema plus lingual zoster.

The pathological anatomy of the condition is not known from microscopic examination.

The lips may be the seat of a similar acute oedema, the lower being the more frequently affected. Among several cases seen by the writer, the following presented the most conspicuous example of this condition: Male, 39 years of age, came to the clinic with negative previous history except that he had had last year an attack similar to the present one, and stated that two days ago, during very hot weather, he had fallen asleep with his head on the window sill. After having slept thus an hour, he awoke to find a strong wind blowing in, and immediately noticed that the left side of the lower lip was somewhat swollen, together with the neighboring part of the cheek, and a portion of the region beneath the chin. The swelling progressively increased during that day, the lower lip becoming enlarged to three or four times its normal thickness, and so greatly occluding the oral aperture that food could be introduced only through a narrow space on the right side. There was simply a tight feeling in the parts, but no pain. Constitutional symptoms were absent. The swelling has since persisted, although diminishing somewhat under hot fomentations. Examination showed a healthy man without abnormality, except for the following conditions: The lower lip is swollen over its left half to three times its natural size, so that it extends greatly over the middle line and renders the essentially normal right half, insignificant in comparison. The affected portion is everted, firm, tense, not pitting on pressure, and nearly closes the opening of the mouth so that introduction of the finger is possible only through a small space on the right. The swelling extends for four or five centimeters under the chin, and for about the same distance into the left cheek, gradually merging into normal tissue. The mucous membrane of the everted lip is somewhat reddened and denuded opposite the lower incisors with which it comes in contact. There was no elevation of temperature. No medicine was given, beyond a glycerine wash. The swelling rapidly diminished in the next forty-eight hours, and

two days later had wholly disappeared. The lip resumed its customary soft, pliable condition, and no induration or local thickening was left.

3 Fairfield Street, Boston.

## THE HYGIENE OF THE PUBLIC SCHOOLS.\*

LEE WALLACE DEAN, M.S., M.D.,

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SANITARY science can have no more important or fruitful field of application than is presented in our educational institutions. We had in 1890, according to the school statistics of our census bureau, over fourteen millions of pupils in the various schools and colleges of the United States,—fourteen millions of boys and girls, to whom the destiny of a nation is about to be entrusted. What can be more important than that the training of these children during their period of physiological growth shall be such that there shall be the least possible amount of physical or mental degeneracy, that they shall become well built, strongminded men and women.

Why is it that we expect when a child begins its tasks in the schoolroom that it will undergo more or less physical degeneration? Why is it that a large percentage of those who enter upon the educational process in good health soon manifest impaired general vigor, acquire distorted spines and develop near sight? It is simply because the hygienic surroundings of the child are not perfect; that the work of the child is not so regulated as not to interfere with the growth of the organism.

Every now and then one hears of a student who must leave the University because of his or her eyes. What is the trouble? In nine out of ten of the cases it is simply the neglect of the ordinary laws of hygiene. They have had some error of refraction, which, if it had been attended to in season, would have caused no trouble whatever; but which, when left alone, has produced a spasm of ciliary muscle, a beginning short-sightedness, and has

\*Read before the Iowa State Medical Society at Cedar Rapids, May 17, 1899.



caused the student to lose a year or more of the most important time of his or her school life. If this student's eyes has been investigated when he or she was in the primary schools, and the error corrected, then by the loss of but two weeks of a very unimportant time in their life, all this could have been avoided.

How much of life is wasted, and how much poor work is done because of the neglect of these rules! It is nothing uncommon to find students here in our University, working at drawing, when they can't tell a straight line. It is a most ordinary thing for an instructor in the dental department to have a student bring to him a crown which he maintains to be perfect. The instructor sees dents and scratches, and points them out to the student, who is unable to see them. While not common, it has happened that an instructor in our University has come to me and said: "My eyes are perfect, but I wish you would look at them." The eyes have been examined and glasses prescribed; the instructor has gone out and looked at the world, and for the first time has seen the world. He had traveled through Italy, France and Switzerland, but he has not seen them. Now, if he wishes to know these countries, he must go over the ground again, simply because his educators have neglected to observe the simple laws of hygiene.

The subject of school hygiene was first studied by Cohn in the early part of the present century. He examined the eyes of 10,000 school children in the vicinity of Breslau, and published the results of his investigations. Since then other observers have made a more or less critical study of the ocular conditions of over 200,000 school children. Stated on general terms, it has been shown that the eyes with hypermetropic refraction, that is, far-sighted eyes, greatly outnumbered emmetropic, that is, normal eyes, particularly during early childhood; that the emmetropic, or normal eye, was comparatively rare, but that the state of refraction most nearly approaching this ideal condition retained an almost uniform percentage during life; that myopia, or short-sightedness, extremely rare or entirely absent before the beginning of the educational processes, was found to advance steadily in percentage with the progress of the pupils in the school, while the percentage of hypermetropia diminished in approximately the same degree.

Cohn found in the University of Breslau the percentage of myopes to be 59.5. He concludes that not only does the number

of short-sighted pupils increase from the lowest to the highest schools, but that the increase is in direct proportion to the length of time devoted to the strain of school life. What Professor Cohn has found to be true in Europe, has been found to be true in America. The same problem confronts us in the United States as was presented to European observers. The problem which presents itself in America is not quite so serious as the European. Most of the American children are raised in smaller towns and in the country. Their surroundings are such that as soon as they leave the schoolroom they look off into the distance, and as we say, rest the eyes. Children in large cities, however, find themselves hemmed in by buildings and objects so close that the eye is constantly in a more or less state of accommodation. The problem in America is much more important, however, than the European. Because of years of neglect, the Germans are said to be a race of myopes. The damage has been done and the results are almost incurable. In America, however, the people have lived an out-door life, and now the effects of abusing the laws of hygiene are just appearing. In short, we are in the position where an ounce of prevention is worth a pound of cure. We are in the position where care on the part of our educators will keep us from the catastrophe which has befallen European nations.

Before we go further with our discussion, it might be well to get a clearer idea of what we mean by the terms myopia, hypermetropia and emmetropia. Briefly speaking, the emmetropic eye is one in which parallel rays of light entering the eye are focused upon the retina; a myopic eye is one in which the rays are focused in front of the retina, and a hyperopic eye is one in which the focus is back of the retina.

The objective examination of the short-sighted eye shows that it is longer than normal. The lengthening is due, as can be readily shown by making a longitudinal section of the eye, to a bulging of the sclera, or protective coat of the eye at its posterior pole. In high-graded myopia the enlargement of the eyeball can be seen when the eye is in its socket; the eye protrudes, the patient is said to be goggle-eyed. If we cause the patient to look toward his nose so as to expose the outer equatorial region, it is seen to be almost flat, not curved like the anterior surface of the eye.

Certain changes have a great tendency to take place within the myopic eye, which produce disturbances of vision much more

serious than the mere loss of distant vision. The myopic eye, because the posterior pole of the eye is bulging, allows the choroid which covers that portion to be stretched. This stretching of the choroid usually results in the production of a diseased or atrophic condition of the choroid, which we call choroiditis centralis. As the choroid is intimately concerned in vision, and as the part which is affected, is located as the posterior pole of the eye, which is the centre of vision, one can readily see what a catastrophe such a change would be. It produces total blindness in the fovea centralis, or centre of vision, and objects which are looked at directly are not seen. Another change which occurs quite frequently in the myopic eye, is the so-called *ablatio retinæ*—or elevation of the retina. The retina is the inner lining of the eye. It lies on the sclera and contains the vitreous or jelly of the eye, just as the membrane of an egg lies upon the shell and contains the egg-contents. Now as the sclera of the eye increases in size the retina becomes separated from its firm background, the sclera, serum collects between the two, the retina is forced further and further away from the sclera until finally a large portion is elevated. That portion becomes insensible to light and we cannot see objects in the external world whose rays of light strike upon it. If only a small portion became elevated it would not be so serious, but an elevation once begun generally spreads until the whole of the retina is affected. It is then not the myopia itself, which is produced by not adhering to the rules of hygiene in the schoolroom, which causes the great trouble, but it is the changes which have a tendency to take place in the myopic eye, namely, choroiditis centralis and *ablatio retinæ*.

Now, how is it that myopia is produced in our public schools. Myopia is but rarely congenital. The rule is that myopia develops in the youth. As the result of many investigations it has been found that myopia occurs almost exclusively in those persons who have used their eyes for near work, as in tailors, seamstresses, typewriters, lithographers, jewelers, and in people who have read a great deal. There can be no doubt but that the production of myopia is due to the carrying on of too much near work. Two factors come into play, namely: the accommodation and the convergence of the eye, which together produce the bulging of the posterior part of the eye. If straining the eyes in doing near work produces short-sightedness, why is it that all

people who do such work do not become short-sighted? With those affected we must conclude that certain factors in addition to the near work are present. As such factors we recognize: 1. A predisposition to myopia; as such we have a weak sclera or a short optic nerve which pulls upon the back of the eye, etc. Children of short-sighted parents are not born short-sighted, but if they are exposed to circumstances favorable to the production of myopia, they have a greater tendency to become myopic than children of parents with normal eyes. 2. Conditions in or about the eye, which cause the person to hold the work too close to the eyes in order to see distinctly. For instance, sewing by poor light causes the work to be held close to the eyes and tends to the production of myopia. Or any trouble in the eye, as astigmatism, cataract, or anything interfering with acuity of vision, which compels the person to hold the work close to the eyes, increases the convergence and accommodation and is productive of myopia. This is the chief factor: People who come from families where there is no myopia, and have had their cornea scarred, so as to interfere with their sight, become short-sighted because they have to hold things so close to the eyes in order to see them at all. It is by eliminating this factor that the application of hygienic rules does most good. We will treat of this later on.

When an object is held close to the face in order to be seen distinctly, two things are necessary: First, an excessive convergence of the eyes; second, an excessive accommodation of the eye.

The excessive convergence of the eyes tends to produce myopia, because when the eyes are turned far in, the balls are pressed upon and the intra-ocular tension is increased; an increase in the intra-ocular tension, of course, having a tendency to push out the back part of the eye. Likewise an increase in intra-ocular tension is produced by excessive accommodation. When looking at an object held close to the eye the ciliary muscle contracts. The greater the contraction the more blood sent to the inner coats of the eye and the greater the intra-ocular tension.

Many of the German writers until recently have viewed myopia rather as a manifestation of a normal evolution than as an evil. One thing is certain, a myope of but three diopters, that is, one with distant point at 30 C. M., is much better fitted for students' work, than an emmetrope. When an emmetropic or normal-

sighted person is reading they usually hold the book about 30 centimeters from the eye. In order to see the letters plainly at this distance he must accommodate 3 diopters. The person, however, who is myopic 3 diopters, has his far point at 33 1-3 centimeters; that is, rays of light coming from a point 33 1-3 centimeters from the eye are exactly focused on the retina. As the book is held at about this distance from the eye, he reads without his ciliary muscle working at all and the tiring of the eyes is prevented. In the same way a person myopic 10 D. is especially fitted as a jeweler, because they hold their work about 10 centimeters from the eye. Not only do these people not have to accommodate to see objects at this distance, but the image of the object thrown on the retina is larger in the elongated eye and objects are seen more distinctly.

Myopia is said to be simply the adaptation of the organism to its work. The German ophthalmologists are the strongest supporters of this theory. The supporters of this theory say that the American Indian, the South African and other uncivilized tribes are far-sighted; that children are born far-sighted and only develop near-sight as they grow older and use the eyes. That people living in rural districts have but a very small per cent of myopes among themselves, while if their children leave their homes and go to work in counting houses, a large number soon develop myopia. Further, that myopia, as a rule, appears only in those who use their eyes for near work, as students, book-keepers, jewelers, artisans, etc.

However, before it can be proven that myopia is an appropriate adaptation, it must be shown that the increase in refraction of the eye is consonant with the health of the organ, and that it is conducive to the greater comfort and usefulness of the individual. If we examine a patient when myopia is just beginning, or when it is progressing, we will find the patient complaining of headache, of mists before the eyes and undue sensitiveness to light. All of these symptoms are made worse by near work. An objective examination of the eye shows a spasm of the accommodation, and a hyperæmia of the optic nerve and retina. If the patient rests the eyes all these symptoms disappear. When they resume their near work they soon reappear. As the myopia continues to advance, in many cases decided pathological changes make their appearance in the intra-ocular membranes of the eye.

Of eighteen hundred and seventy-eight myopes observed by Homer, over 34 per cent developed dangerous complications, either diseases of the vitreous, inflammations of the choroid, detachment of the retina or cataract. These facts certainly show that myopia is not consonant with the health of the organ. The best proof, however, that myopia is not an appropriate adaption of the organism to its work is as follows: It has been found by observation that those eyes which are emmetropic and those eyes which most nearly approach the conditions of the emmetropic eye do not become myopic. That it is those eyes which have some error in refraction or some defect in the eye which diminishes the acuity of vision and causes the person to strain the eyes or hold the work too close, which become near-sighted.

If what we have said about the causes of myopia be true, it is obvious that the most painstaking attention to the details of general hygiene of the schoolroom and the adoption of the most approved educational methods should be adopted in order to arrest its spread.

We have found the main cause of myopia is some defect of vision, which causes the student to hold his book close to his eyes. To overcome this, some systematic method of inspection should be adopted in the schools which would be effectual at the very outset in detecting anomalies of vision, and at least, make it possible to warn the parents of existing unfavorable conditions and of the probable injury to the eyes if neglected. That children are entered without question as to the state of their vision, is doubtless due in large measure to ignorance of any necessity for such inquiry. Parents who are careful of their children's welfare in other respects are unmindful in this, and educators thoroughly versed in the improved methods of mental training accept the important trust committed to them, not knowing whether the vision of the child is sufficient to sustain the coming struggle with books. There is great need, therefore, for popular education in this respect. When parents come to understand that the vision of their children may be defective, and in consequence their school life fraught with danger to the eyes and their educational process retarded, there will be less negligence in this direction.

When a child is brought for admission to the school, one of the first questions should be, "Have your eyes been tested?" If answered in the negative, such investigation should be urged upon

the parents, or made at the time by the teacher or some person detailed for this duty and instructed in the proper methods of examination. Such inspection would at once eliminate all those pupils with considerable errors of refraction, with corneal opacities, or with serious pathological conditions of the fundus. If, at the beginning of the school life, these congenital anomalies of refraction could be carefully corrected by suitable glasses, we should hear much less complaint of the harmful influences of the schools upon the eyesight of our children.

Children with red or inflamed eyes should never be permitted to enter the school until a physician's certificate of the non-infectious nature of the disease has been presented. This precaution is especially necessary in our modern schoolhouses, with their lavatories, where the children find facilities for bathing the hands and face in wash basins which of necessity must be used by all in common.

Passing from the study of the eyes, we come to the consideration of hygiene of the schoolroom, so far as it may affect the vision of the children. The type in the text-books, especially those employed in the lower grades, is good, and the paper used in most of the books is not open to adverse criticism.

In many of the schoolhouses glaring defects are present. The arrangement of the seat and desk is, in many cases, to be condemned. At the lower part of the pelvis are the two ossa innominata or seat bones, which are curved and rock easily backward and forward. It is only when the line of gravity of the body falls perpendicularly upon a line joining the centre of these two bones, that the body can remain at rest in a sitting posture. Any movement which displaces the centre of gravity must carry the line of gravity in front or behind this line and make it necessary to seek a third point of support. In the forward sitting posture it is obvious that this third point of support must be the front edge of the seat or some point between it and this line. The farther forward it falls, the more unstable is the support and the greater the exertion required of the muscles of the pelvis to maintain the unstable equilibrium. These muscles soon tire and the trunk, obeying the law of gravity, falls forward if not upheld by some extraneous support. This is generally furnished by the desk or table upon which the elbows or chest are allowed to rest. In a word, we simply prop ourselves to prevent the trunk from falling forward

after the muscles of the pelvis and back are tired out. From these considerations, it is plain that it is a very faulty arrangement to have the seat too far back from the desk. In order to work at a desk so placed the pupil is compelled to reach forward. To do this he perches himself on the front of the seat, while the feet are carried backward under it. The trunk falls forward and finds support upon the elbows, one or both of which rest upon the desk.

If but one—the left is used for support while the right hand is employed as in writing, the vertebral column is partially turned on its long axis and the entire trunk held in a distorted position which we may well believe is conducive to the production of spinal curvature in growing children. In this forward pose of the trunk, the head is no longer supported by the spine and must be upheld by the muscles of the neck, which should be required only to balance the head.

They soon tire and the work then falls upon the muscles of the back, which in turn give up the task, and the head falls forward towards the work, while the trunk sags forward and downward between the shoulders. The face is brought too near the page, the left eye nearer than the right. This adds greatly to the strain of accommodation and convergence. The practical value of this can be readily demonstrated at pleasure by placing the chair at greater or less distances from the writing desk.

One golden rule governing the seating of school children may be stated. The arrangement of seat and desk must be such that the child will find it easier to sit upright at his work, than in any other position he can assume in his seat.

Adequate light so far as the hygiene of the eyes is concerned, is of primary importance. Two points are of special importance, (a) the quantity, and (b) the direction of light.

It is obvious that no plan of construction can atone for the too close proximity of surrounding structures which shut off the light or reflect it injuriously from their opposing walls or windows. Fuchs places the angular measurement of near buildings at  $20^{\circ}$ . As to the quantity there cannot be too much. Every part of the room should be so lighted that the smaller type can be read at 12 inches.

The importance of sufficient light is made manifest by attempting to read in a dimly lighted room. The page is held too close to the eyes and an increased convergence and accommodation is necessary.



Cohn investigated the eyes of children in a schoolroom on a dark day. He found a turgescence of all the tunics of the eye. Here simply by working a few hours under unfavorable conditions, changes were produced in the eye. The amount of light in a schoolroom can be increased by covering the blackboards and painting the room in light colors.

The direction of light is of practical importance. It should come from the left and rear, so that the pencil will not cast a shadow.

Physiological investigation of the limit of time for intellectual work teaches us that there should be frequent intervals of rest. What is true of the brain is eminently true of the eyes. The eyes should be rested either by blackboard instructions or by recesses.

Excessive reading, especially of novels, should be prevented. Children whose eyes have been found especially deficient should be taken out of school and either educated by private instructors, or sent to special schools for the instruction of those with deficient vision.

Iowa City, Iowa.

#### BACTERIOLOGY OF MEASLES.

At a meeting of the Medical Society of the Hospitals of Paris, M. H. Barbier reported the results of his study of the bacteria to be found in the blood and in the secretions of the mucous membrane of the eye, nose and throat of patients affected by measles. The blood of 7 out of 10 was sterile while the other 3 showed micro-organisms of the skin.

Cultures from the conjunctival discharges of 37 cases gave 31 positive results. The bacteria were few in number and unusual in kind. 16 of the 31 showed a bacillus resembling in morphology the bacillus of diphtheria. It is short lived, ceasing to grow at the end of ten days and is non-virulent to mice, rats, guinea-pigs and rabbits. Its presence has moreover been noted by M. Morax. Occasionally it has been found in people without measles, but this is unusual. The white staphylococcus was found in 13 of the 37 cases, 12 times associated with this bacillus just described.

An abundance of microbes were found in the discharges of the mouth and nose, the streptococcus being especially common.—(La Tribune Médicale.)

## PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, April 11th, 1899.

THE PRESIDENT, DR. EDWIN E. GRAHAM, IN THE CHAIR.

DR. J. H. JOPSON read a paper on CICATRICAL STRICTURE OF THE ŒSOPHAGUS IN CHILDREN, and exhibited a patient in whom gastrostomy had been performed. In children the most frequent cause of this condition is the ingestion of caustic substances, especially lye, and these strictures are of the most intractable nature, owing to their length and the fact that they are usually multiple. The symptoms may come on at a longer or shorter interval after the swallowing of this caustic and the symptoms of ulceration may shade into those of contraction. The symptoms are gradually increasing difficulty in swallowing, first of solids, later of soft foods and liquids, vomiting after the taking of food, pain and tenderness, localized or referred to neighboring points, constipation or diarrhœa, and a tendency to catarrhal affections of the bronchi. The tendency is for progressive contraction until even soft and liquid foods encounter obstruction, and the symptoms of starvation are added to the clinical picture. The diagnosis of the stricture may be made, and information elicited as to its location, calibre, and permeability by the passage of bougies, soft instruments being preferable for this purpose. The methods of treatment employed comprise gradual or rapid dilatation from the mouth, electrolysis, œsophagotomy, internal and external, œsophagostomy, simple gastrostomy, and gastrostomy combined with retrograde dilatation, retrograde divulsion, internal œsophagotomy, continuous dilatation and Abbes' string method. The cases not responding quickly to gradual dilatation from the mouth, gastrostomy will frequently be required and the mistake is more usually made of putting it off until too late, than of performing it too early.

The patient exhibited was a girl aged four years, with a lye stricture of the œsophagus 7 inches from the teeth. The stricture being impassable to bougies, gastrostomy was urgently demanded to obviate threatened starvation, as there was almost complete ob-

struction to the passage of liquids. The operation was done in two stages.

There had been a marked gain in weight and strength since the operation, and the rest given the œsophagus had resulted in a partial restoration of the power of swallowing. A tube was worn in the fistula for a time, when it was discarded, and a rubber belt with an inflated bulb in its centre used with admirable effect to control leakage. Two months had elapsed since the operation and it was now proposed to practice Beehuisen's method of dilatation with silver balls of graduated size to be attached to a thread, swallowed and withdrawn after they had passed the stricture.

#### DISCUSSION.

DR. L. J. HAMMOND.—It would seem out of place to mention any other procedure for dealing with œsophageal atresia after having seen this favorable result following the method of Dr. Jopson, and yet there is one method which might be spoken of; that is, doing first an œsophagostomy below the seat of stricture, then passing the finger up to the point of stricture and with a blunt-pointed bistuary incising it in several places. The tube then can be at once passed through the mouth into the stomach and left in position, or the treatment can be made directly through the œsophageal opening. By this means it seems to me that much less treatment is called for and consequently earlier recovery expected to take place. The necessity for mechanical means will be early removed and I think would avoid leaving prolapse, such as we have in this case, of the mucous lining of the stomach. I have operated on one case in the manner above outlined and the results were very satisfactory indeed. This procedure could not be resorted to when the obstruction closely approached the cardiac end.

DR. J. P. CROZER GRIFFITH.—I have watched this case with a great deal of interest. It was under my care in the Children's Hospital, having been brought to the Out-patient Department last June. I sent it to the wards and lost sight of it until this winter, when it again came under treatment during my term in the wards.

In attempting to drink water she would sit with a bowl of ice in her lap and every few minutes raise it and drink what water had melted, and then almost immediately regurgitate all she had swallowed. It was pitiable, too, to see her wasting away. I tried

repeatedly to get a sound into the stomach, but had no greater success than Dr. Wharton met with. Evidently the stricture was near the stomach and could not have been reached by any operation upon the œsophagus from the outside. The child regained some ability to swallow about a day before the operation, and after it seemed to learn to swallow pretty well. I was very anxious that there should have been some effort made at the time of the operation to dilate this stricture from below, because a permanent opening into the stomach is certainly not a thing greatly to be desired, but I know that Dr. Jopson's opinion of the child's condition was that it was not such as would warrant much interference at the time.

DR. JOPSON.—In reference to Dr. Griffith's remarks upon the advisability of doing anything more at the time of the first operation, I am strongly of the opinion that it would not have been wise. The operation may seem simple, but it is attended with considerable risk in this class of cases. In a gastrostomy done at the Children's Hospital by the Witzel method, the child died of shock within 24 hours. Again, in cicatricial strictures in children, it is better to wait until a fistula is formed and then dilate, because these strictures are often multiple, and the process of dilatation is liable to be more tedious.

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DR. EMERY MARVEL read a paper entitled HYDRONEPHROSIS, PYONEPHROSIS; NEPHRECTOMY IN A BOY 4½ YEARS OLD.

The patient, who had been in previous good health, was accidentally shot October 7, 1898.

Three hundred and eighteen small bird-shot penetrated the back of the head, body and legs; some of which perforated the thighs, leaving tracts of over three inches. These wounds were cleansed and dressed. The following day the urine was smoky red, alkaline and ropery, showing albumen and blood in large quantities. During the subsequent twelve days improvement was continuous, but the patient complained of frequent pain in the penis and right testicle. On October 19th, twelve superficial spots were removed, one of which was taken from near the right spermatic cord. Three days later while the boy was out playing, a prominence was observed in the right lumbar region, which increased during the seven subsequent days. This was aspirated of 27 ounces of straw colored, alkaline fluid in which albumen,

bile, blood cells and phosphatic crystals were found. The urine the same day contained neither albumen nor blood.

The day following aspiration the prominence began to recur, and rapidly increased for three days when fear of rupture was apprehended. At this time a lumbar incision was made, liberating over a half gallon of fluid. Failing to secure the kidney, the removal of which was intended, the wound was closed, leaving a tube for drainage. Patient's condition gave no further alarm for nine days, when there was a rise of temperature ranging from normal to 104° F. This became normal December 1st and remained so for two weeks, when it abruptly jumped to 106° F., followed by great irregularity until the time of the subsequent operation.

December 22nd a lumbar incision was made, the kidney found, brought out, vessels and ureter ligated and the organ removed. Upon section of the ureter much pus escaped. The kidney was enlarged, measuring along the greater curvature 16 c.m., lesser curvature 10 c.m., breadth 5½ c.m., and width 5 c.m. It also showed several wounds where shot had perforated the organ.

With the exception of failure in respiration after operation, due to ether narcosis, the recovery was uninterrupted, patient being discharged from hospital January 15th, 23 days after operation. March 12th, 17 ounces of urine were passed during twenty-four hours, and this was not albuminous and contained no blood. The boy is now stouter and heavier than ever and suffers no inconvenience.

#### DISCUSSION.

DR. J. H. JOPSON.—I think that the ureter itself was injured and probably secondarily occluded. That there was an injury of the kidney or ureter is proven by the presence of hæmaturia; and the slow formation of a cystic tumor in the loin after such an injury as this boy received would also point to the same conclusion. A tumor forming immediately after the accident would probably indicate a peri-renal hemorrhage, whereas a swelling due to a peri-renal collection of urine would not appear immediately, but as a result of gradual leakage, and this I think was what happened here. A tumor appearing in the loin at considerable times subsequent to an injury would lead one to suspect a stricture of the ureter with consequent dilation of the kidney and hydronephrosis. as Morris points out in his Hunterian lectures. In this case there

was no dilation of the kidney, and I should interpret the condition as one of peri-renal extravasation of urine, the result of a wound of the ureter. If the perforation of the ureter could not be found, and if there resulted a persistent urinary fistula, nephrectomy might be justifiable, and it would certainly be indicated if, as often happens, infection of the fistula and kidney takes place, an accident which is often unavoidable, and which apparently occurred in this case.

DR. L. J. HAMMOND.—In reference to the diagnosis, if it had been peri-renal inflammation, I think one of the most conspicuous as well as earliest symptoms would have been marked flexion of the thigh upon the abdomen due to the irritation of the lumbar, psoas and iliac muscles.

DR. MARVEL.—I am glad to hear Dr. Jopson regarding the possibility of peri-renal abscess. That appealed to me as being more than probable at first, but after having cut through the abdominal walls there was no evidence of involvement of the peri-renal tissues.

There was never any marked flexion of the thigh, and the boy was able to walk even when the tumor was largest.

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DR. J. P. CROZER GRIFFITH exhibited a case of DOUBLE HARE-LIP AND CLEFT PALATE, with the intermaxillary bone attached only to the bones of the nose.

#### DISCUSSION.

DR. J. H. JOPSON.—Dr. Ashhurst has been waiting for the child to convalesce from bronchitis, to which affection these children are very liable. The pre-maxillary bone in this case is attached by such a slender pedicle that it will have to be cut away, and the skin covering it can be used to form a columella for the nose. There will be some trouble also in bringing together the sides of the lip, owing to the width of the gap. After that the matter of closing the hard and soft palate will have to be left until the child is a few years older.

DR. ALLEN.—Some months ago I saw a child with cleft palate without the complication of hare-lip. I learned upon inquiring into the family history that a sister of the child's mother had had cleft palate, and in a brother of the mother I noticed a cleft uvula, with probably a cleft hard palate. This is an interesting instance of hereditary transmission of the deformity.

DR. THOMPSON S. WESTCOTT reported a case of ACETANILID POISONING IN A FEMALE INFANT 4 MONTHS OF AGE, the child of a brother practitioner. She was a fat, well-developed baby, nursed entirely upon the breast; and during the hot weather of last summer she perspired freely and became chafed in the folds of the groins and the creases of the thighs, a mild eczematous condition existing in a small portion of the areas affected. For this the father had ordered a dusting powder of pure acetanilid. Three hours after the drug was applied the whole surface of the body showed a peculiar grayish pallor and the lips were bluish, though the surface temperature was not thought by the mother to be lower than usual. The cyanosis increased for an hour and a half, the face became pinched and drawn in appearance, and the baby was in a profound slumber from which she could not be aroused. When the father first saw her, four or five hours after signs of poison were first noticed, the cardiac action and respiration were not appreciably disturbed. The remains of the powder were not removed till this time. Recovery gradually ensued without any more active treatment than small doses of whiskey once or twice repeated. In this case the actual amount of surface capable of directly absorbing the drug was very small and in no way comparable to the area of surface exposed in other cases so far recorded. The report concluded by deprecating the free use of so dangerous a drug under any conditions in young children, and considered that the existence of any break in the surface should demand the greatest caution in its use, if indeed, this should not be judged a positive contraindication.

## DISCUSSION.

DR. ALFRED HAND, JR.—When I was on duty as Resident in the German Hospital, we used acetanilid rather extensively. I recall the case of a man with an extensive laceration of the arm, from the wrist almost to the shoulder. I sprinkled acetanilid on the surface, making no estimate of the amount used and in very short time I had the man very cyanotic, which condition disappeared with the cessation of the use of the acetanilid. I also saw a case of poisoning in a child in which a ten per cent ointment had been prescribed for a case of eczema. Through a mistake, more of the ointment was used than had been intended, and four ounces had been applied within 24 hours. The child went into profound collapse, with very weak pulse. Removal of the ointment and

stimulation brought about recovery. Since then I have, as Dr. Westcott suggests, avoided using it on raw surfaces. Acetanilid being soluble in alkaline fluids, the alkaline juices of the body would take it up very readily.

DR. BRANSON.—I am reminded of a case seen during my service in the Pennsylvania Hospital, in a man who was under the care of Dr. T. S. K. Morton. About two drams of the powdered drug were used and in a few hours the man became very cyanotic, the pupils were dilated and he developed a very peculiar happy delirium, which kept up for about three hours and a half. He sang very loudly and was extremely happy. The pulse and respirations were not particularly affected.

DR. WESTCOTT.—I think, as I have said, that it is a dangerous drug to use with young children and that there are many other antiseptic desiccant applications which could be employed with absolute safety, such as the stearates. In this case the amount of raw surface was very small, in fact, nothing more than the intertrigo so frequently produced in the folds of the skin by hot weather. It is quite likely that absorption was favored by the moist condition of the skin and that thus the general surface took some part in the absorptive process.

DR. ALFRED HAND, JR., exhibited specimens of kidneys taken from the body of a girl of twelve years.

## REVIEW OF PEDIATRY.

### SCARLET FEVER.

In the *Tenth Series of Medical and Surgical Reports of the Boston City Hospital*, recently issued, Dr. John H. McCollom, Superintendent of the Contagious Department, presents a very interesting discussion of Scarlatina.

By a series of skillfully drawn charts he has clearly demonstrated that the disease is more prevalent in Boston than in some of the larger foreign and American cities. Thus in 1897 the mortality from scarlet fever in Boston exceeded that in Glasgow, London, Berlin, New York, Philadelphia and Brooklyn, and was far beyond that of Paris, Chicago and St. Louis. The difference



is in many cases impossible to explain. Moreover the death rate in Boston has been reduced during the last six years from 5.60 in each 10,000 well people in 1892 to .61 in 1898. This has coincided with a steady decrease in the prevalence of the disease and a marked increase, especially during the past year, in the number of cases treated in the hospital. Better treatment naturally results, and what is of much more importance the spread of infection is avoided.

Of 1,000 cases treated in this Hospital, including moribund cases, only 98 died. Brief histories of these fatal cases are given and we quote a few of them.

CASE VI.—A girl, five years old. The patient did not have a very high temperature when admitted, being only 103° F. The amount of albumin in the urine was quite large for the earlier stages of scarlet fever, being one-eighth of one per cent. The condition of the patient was satisfactory until twelve hours before death, when she had a convulsion, uremic in its nature, from which she did not rally. The result in this case emphasizes the importance of a guarded prognosis in the moderately severe cases of scarlet fever, characterized by a large amount of albumin in the urine.

CASE VIII.—A boy, eight years of age. The rash was not very brilliant in this case, neither was the temperature specially elevated. Twenty-eight days after entrance the boy commenced to have albumin in the urine. The quantity varied from one-fourth of one per cent to a trace. He had frequent vomiting, twitching of muscles, partial suppression of urine and finally died in a uremic convulsion. His case is of particular interest from the late appearance of the renal complications. Digitalis and pilocarpine were the chief drugs used. Hot packs were given frequently in the later stages of the attack.

CASE XXVII.—A boy, two years of age. This patient when admitted had marked enlargement of the papillæ of the tongue and small areas of a white membrane, probably due to streptococci. The temperature remained persistently elevated and the patient was unconscious. He died some days after admission. From the characteristic elevation of the papillæ of the tongue, from the appearance of the throat, from the dry and papery feel of the skin of the body, from the dry and horny feel of the hands and feet and from the persistently high temperature, it is evident that this was a case of scarlatina *sine eruptione*.

CASE XXXI.—A boy, two years of age. This patient when admitted had been ill one day. He had a characteristic eruption of scarlet fever. The temperature was not specially elevated and on the fourth day reached the normal line. On the seventh day after admission there was a sudden rise in temperature, suppression of urine and œdema of the face. On the thirteenth day after admission the patient died. The history of this case emphasizes the importance of giving a doubtful prognosis in even the mildest case of scarlet fever. For there was nothing in the condition of the patient on the first four days of his illness to indicate any renal complication. As is sometimes the case, the kidneys, after having performed their functions properly during the initial stage of the disease, suddenly ceased to act, and the patient died of uremia.

CASE XXXV.—A boy, nine years of age. This patient on admission had a high temperature and an extremely brilliant eruption. He was wildly delirious and lived only twenty hours. At the autopsy broncho-pneumonia and general lymphatic hyperplasia were found. The spleen was very considerably enlarged. Cultures from the larynx revealed the presence of staphylococcus pyogenes, aureus and albus. There was a diffuse growth of the colon bacillus in cultures from the kidneys. As this patient had been ill only two days, the case can be classed as one of the fulminating variety of scarlet fever.

CASE XLVI.—A girl, three years old. When this patient was admitted she had a well marked eruption of scarlet fever and a temperature of 100° F. On the third day, however, the temperature rose to 104° F. In this case there was also a profuse diarrhœa, which is always a very grave symptom in scarlet fever. She died the fifth day after admission and the seventh day of the disease. In this case the eruptions did not fade, neither did the temperature drop to any considerable extent. No autopsy. Death in this case was due to scarlet fever without complications.

CASE LXXI.—A girl, six years of age, had been ill one day with vomiting, sore throat and convulsions. When admitted the lips were blue, the hands and feet were cold. The pulse was irregular and weak; the temperature was 103° F. On the body was an eruption of scarlet fever, and also numerous hemorrhagic areas. Just before death, which occurred in about twenty hours after admission, the temperature rose to 106° F. There was com-

plete suppression of urine. Hemorrhagic scarlet fever was the cause of death.

CASE LXXV.—A boy, thirteen years of age. When admitted this patient had been ill twenty-four hours. There was marked prostration and extreme delirium. A streptococcus membrane covered each tonsil. At the apex of the heart was heard a well marked systolic murmur which was transmitted. The boy died in twenty-four hours after admission. At the autopsy acute tonsillitis, pharyngitis, small multiple abscesses of the œsophagus, acute splenitis, chronic adhesive pleurisy, congestion of the lungs, cloudy swelling of the liver and kidneys were found. Culture from the tonsils and the lungs revealed streptococci and staphylococci. Scarlet fever was evidently the cause of death.

CASE LXXVI.—A girl, seven years of age, was admitted on the second day of her illness. There was swelling of the cervical glands, marked prostration and slight delirium. The throat was intensely congested but no mucus could be seen. The eruption was characteristic and quite brilliant. The temperature was 105° F. The patient lived about twenty hours. At the autopsy, acute splenic tumor, acute congestion of the lungs, liver and kidneys, general lymphatic hyperplasia and cervical adenitis were found. Cultures from the heart, lungs and kidneys revealed the presence of streptococci. This case would seem to show that the streptococcus infection plays an important rôle in deaths from scarlet fever.

CASE LXXVII.—A girl, six years of age, was admitted the third day of her illness. She had a characteristic eruption of scarlet fever and a temperature of 103° F. On the sixth day after entrance a broncho-pneumonia of each lung developed. On the seventh day the area of the heart was found to extend from one-quarter of an inch to the right of the sternum, to about one-half an inch outside the nipple line; the apex was in the sixth inter-space. A *bruit de galop* was heard all over the precordial area; at the apex could be heard a loud blowing systolic murmur that was transmitted to the axilla; at the base the pulmonic second was markedly accentuated.

The next few days the heart dilated to a very considerable extent. On the twenty-third day after entrance a distinct pericardial friction sound was detected. The urine contained albumin in varying amounts during the whole course of the disease;

the urea was diminished in a marked degree. The patient died on the thirty-first day of the illness. Acute fibrinous pericarditis, acute aortic endocarditis, acute general lymphatic hyperplasia, acute splenitis, cloudy swelling of the liver and kidneys, and acute otitis media of the left ear were revealed at the autopsy. Frozen sections of the heart and kidneys showed no fatty degeneration. The condition of the heart in this case is comparatively rare in scarlet fever, but it does occur even in the mildest attacks of the disease.

CASE LXXXI.—A girl, five years of age, admitted on the third day of her illness. She had a temperature of 101° F., marked prostration, a very brilliant eruption, with hemorrhagic areas in the groins and posterior portions of the thighs. At time of admission the heart was slightly dilated and in three days this dilatation had considerably increased. The patient died on the twenty-first day of the illness. At the autopsy, acute general lymphatic hyperplasia, chronic tuberculosis of the mesenteric glands and dilatation of the left side of the heart were found. Frozen sections of the heart muscle and kidney showed fatty degeneration, more marked in the kidneys.

CASE LXXXVI.—A woman, twenty-one years of age, was admitted on the fourth day of her illness. There was an extremely brilliant eruption of scarlet fever, a temperature of 106° F. The patient was semi-conscious. Four days previous to entrance she had been confined. The labor was normal; the child was born alive. On the next day after her confinement, she had a rise in temperature and the rash appeared. She died twenty-four hours after entrance and the fifth day of her illness. At the autopsy, acute general lymphatic hyperplasia, parenchymatous degeneration of liver and kidneys, marked fatty degeneration of heart and kidneys, acute diphtheritic endometritis and chronic tuberculosis of the bronchial glands were found. This must be considered a case of scarlet fever, occurring in the puerperal state.

CASE XCVII.—A girl, seven months old, was admitted on the second day of her illness. There was a brilliant eruption of scarlet fever and a temperature of 103° F. On the fifth day after entrance she developed a broncho-pneumonia and died on the tenth day after admission, and the twelfth day of her illness. No autopsy. Broncho-pneumonia occurring as a complication in the course of scarlet fever was the cause of death in this case. It is

of interest, as it is a refutation of the statement frequently made that nursing infants are not susceptible to scarlet fever.

We feel sure that our readers will be interested in these brief reports.

Among the points which Dr. McCollom notes in his analysis of these 1,000 cases are the following:

A large proportion of cases of scarlet fever have in their throats a membrane, diphtheritic in appearance. Yet cultures from only 11.75 per cent of such membranes showed the bacilli of diphtheria.

28.1 per cent of the patients whose urine it was possible to examine had no albumin while the slightest possible trace was found in 39.3 per cent.

The enlargement of the papillæ at the tip and edges of the tongue is a constant symptom and was found in every one of the 1,000 cases observed.

Enlargement of the glands was noted 367 times, but only in 44 instances did they suppurate.

The scarlatinal poison affected the heart in a large number of cases, causing systolic murmurs in 187 cases. Other effects were, rapid dilation, irregular action, and pericarditis. The murmurs seem to be due to the action of the poison on the muscles of the heart and not to any state of the blood.

So called rheumatism occurred only ten times. But the term scarlatinal rheumatism is a misnomer. The pain in the joints is not due to rheumatism but is the result of streptococcus infection and should be treated as such, not as rheumatism.

Relapses are observed in four cases, the diagnosis being established beyond a question and a brief history of each case appended.

The average length of time required for desquamation is fifty days, though some cases took much longer.

Clinical experience has demonstrated that just so long as there is any necrotic skin in the commissures of the fingers and of the toes, just so long is the individual a source of danger to the community.

In making a diagnosis in doubtful cases special stress is laid on the condition of the papillæ of the tongue and of the tips of the fingers late in the disease. These papillæ may look very much like small grains of cayenne pepper sprinkled on the tongue, or

they may have a button-like appearance, only considerably elevated but not specially reddened. After the disappearance of the eruption, the existence of a white line at the junction of the pulp of the finger with the nail, showing beginning desquamation, is often of great assistance.

Treatment consists of rest in bed, milk diet, sponge baths, fan baths, digitalis for heart complications; free draughts of water for kidney complications, hot packs for suppression of urine. Tincture of the chloride of iron, tub baths, irritant diuretics, coal-tar products, strophanthus and pilocarpin are not approved of for general use, though occasionally serviceable in suitable cases.

#### HEMORRHAGE IN THE NEW-BORN.

Dr. John N. Upshur of Richmond, Va. (The Charlotte Medical Journal, January, 1899), reports a case of Hemorrhage in the New-Born with original treatment.

"On the 19th of December, 1897, I delivered, after a satisfactory labor, an average female infant, of vigorous parentage and, so far as I could learn, free from all taint or heredity. The infant was well nourished, and took the breast satisfactorily. When thirty-six hours old it vomited some blood, not much. This was followed by a bloody stool and in the next twenty-four hours she had fifteen of this character till she was almost pulseless, mucous membranes and skin blanched and fontanelle deeply depressed, surface cool. Prognosis very grave and source of hemorrhage very obscure. Remembering the disproportionate size of the liver in early life, I concluded that the cause of the bleeding was torpid liver with consequent congestion of the portal circulation and of the gastro-intestinal mucous membrane. Acting upon this theory I empirically gave  $\frac{1}{2}$  grain of calomel every hour. So soon as a characteristic calomel stool was obtained the bleeding ceased. The infant rallied from the depression and made a satisfactory recovery. Now, at one year old she is plump, fairly grown, mucous membranes florid, though surface is pallid, teething backward. There was no evidence of jaundice in this case, at this time or subsequently. This view is sustained by the theory suggested by Grynfeldt as the result of the observations of Billard and confirmed by personal studies of the histology of the digestive mucous membrane of new-born infants (American Text-Book)."

#### DEATH FROM BROMOFORM.

A five-year-old child recently died from the effects of an overdose of bromoform. The attending physician said: The medi-

cine was properly compounded, suitable for whooping-cough. His theory was that the whole of the bromoform had been concentrated in the last dose given to the child, through the bottle not having been shaken as directed. The verdict was death from misadventure.—(Practical Druggist, February, 1899.)

#### STERILIZED MILK MAY BE UNSAFE.

Prof. Marfan of Paris combats the idea that is so widespread among the laity that sterilized milk is safe. He has had an occasion to report an epidemic-like outbreak of severe gastro-enteritis in young children. These children were all fed from milk that had been carefully sterilized and then delivered by the company. Upon investigation, it appeared that the milk was sterilized 16 hours after milking. While the sterilization was abundantly able to kill the bacilli, they had had time in the meanwhile to multiply and develop toxic substances, which were the cause of the outbreak. Heat kills bacteria but it does not destroy the poisons generated by them. If milk is sterilized after the poisons have been generated it is as dangerous as unsterilized milk.—(Practical Druggist, January, 1899.)

#### INFANTILE DESQUAMATION.

George A. Birdsall, M.D., reports a case of Desquamation in a child ten days old.

The child was born on the 4th of February, 1898, of Bohemian parents. The family history of neither father nor mother could be obtained. Labor was normal and the mother made an uneventful recovery. There was nothing unusual about the babe's condition until the tenth day, when the father called at my office and asked for something for the baby's groins. I gave him a dusting powder and thought no more of the case until the third day, when I was called in to see the child. I found it restless, and the mother told me that she had not slept for two nights on account of its crying.

Examination revealed the following condition:

Both groins, the upper fourth of inner aspect of both thighs, the perineum and front of the neck were all denuded of the epidermis, which was rubbed into rolls and shreds. I had the clothing removed and applied a dressing of strips of soft linen, saturated with carbolic vaseline, mild, to the affected parts, and re-

tained them by bandages, then wrapped him in soft linen and woolen blankets.

Two days later the father called to report. The babe was still very restless, the mouth was getting sore, and he thought the "raw" places were some larger.

I called to see the child on the following day and found the mouth festooned with shreds and bits of epithelium. The entire epidermis of the right arm rolled down around the wrist and that of the hand was loosened and broken in several places.

The left arm was about one-half denuded of its epidermis and that of the body and lower extremities had the appearance of separating. I cleared away, with scissors, the detached fragments and applied the same dressing as before and instructed the mother to renew them whenever they became disturbed. Four days later there was not a vestige of the original epidermis left upon the body or limbs; the nails did not come off.

The child was fairly restful from this time on to the full development of a new epidermis throughout, which was complete in about ten days. The skin was left pliable and smooth.

The child has remained well and strong ever since.

I used throughout the entire course the dressings of vaseline, my object being to exclude the air as much as possible, keep the surface moist and protect it from irritation.—(The Medical Herald, February, 1899.)

#### CONVULSIONS.

The following case reported in *The American Practitioner and News* of February 15, by Dr. H. A. Cottell, well shows the ease of incorrect diagnosis in these cases:

"A child fifteen months old had a little spasm previous to the time I saw it; the spasm did not amount to much, and I was satisfied it was due to indigestion. The convulsion was easily controlled with bromides and chloral, and the child went along in as good health as before.

Two weeks from that time I was called in haste to see the child about ten o'clock in the evening. When I reached the patient it looked as if the game was up. The child had been in spasms for more than an hour. It was almost pulseless, totally unconscious, face drawn to one side, and there was a peculiar clonic spasm of the upper extremities which we so often see in acute hydrocephalus. I noticed that the abdomen was considerably ballooned. Of



course I made a very unfavorable prognosis. I ordered **calomel**, two grains on the tongue, and gave chloral by enema. I **told** the father that the disease had gone to the brain. I thought **it a case** of effusion. I said the child would probably die in a few **hours**, but if it did not die before midnight or was not very much **better**, to telephone me. The next morning about seven o'clock **I was** again called to see the child. I was surprised that the **child was** still living. The bowels moved in an hour after I was **there** the evening before, the child had awakened from coma, the **convulsions** had ceased, and it had gone into natural sleep which **lasted** till morning. Indeed, it showed little or no signs of **having** been sick the night before."

## BOOK REVIEWS.

**HUMAN ANATOMY.** A complete systematic treatise by *various* authors, including a special section on surgical and *topographi-* cal anatomy. Edited by Henry Morris, M.A. and M.B. *Illus-* trated by 790 wood-cuts; over 200 printed in colors. *Second* edition, revised and enlarged. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1899. *Price,* \$6.00.

It is six years since the first edition of this excellent "systematic description of every part and organ of the human body as it is studied in the dissecting room" first appeared. It is designed for the use of students preparing examinations in anatomy in the English universities or before the examining boards of the Royal Societies. Several of the authors, *e.g.*, Morris, Sutton and Treves, have an international reputation and the others are evidently highly esteemed in their native land, if one may judge by the honors conferred upon them. Though the volume has over 1,250 large pages, it is not of unwieldy size or weight because of the fine quality of paper employed. The abundant illustrations are remarkably clear and distinct and nearly all of them drawn specially to illustrate this text, something unusual in books of this character which often borrow freely from each other. The leading words or captions of the paragraphs are faced up so as to at once attract the eye and thereby greatly facilitate study and ref-

erence. Further than this we need not speak. The book well fulfils its editor's desire as quoted above, and deserves our hearty commendation.

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**MATERIA MEDICA AND THERAPEUTICS.** By FINLEY ELLINGWOOD, M.D. With a condensed consideration of Pharmacy and Pharmacognosy, by Prof. John Uri Lloyd, Ph.D. Published by the Chicago Medical Press Co., 103 State Street, Chicago, Ill. Price, \$5.00.

We have been much interested in an examination of this volume. Its presentation of the principles of eclecticism and their application in various drugs and preparations is to us unique. Professor Lloyd claims that the fundamental object of this system of medicine, or rather of therapeutics, is the attempt to apply one drug to one symptom. "Compound" preparations they abominate and seek that the preparations of the drugs themselves be freed from even coloring matter. This is of course an extreme reaction from the old time "shot gun" prescriptions, now so generally abandoned. But it is extreme. Rational therapeutics which is reasonable in something more than name, must lie in the middle ground. It is therefore quite possible for us who desire to be broad-minded, scientific, and successful practitioners to learn many things from these brethren who emphasize so vigorously many remedies entirely unknown to, or neglected by, most of us.

The book is well written and seems to be based upon a considerable clinical experience as well as wide knowledge of the drugs discussed. The drugs are arranged in simple groups, while an extensive "Index of Diseases" serves as a basis for therapeutic study or investigation.

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**MANUAL OF DISEASES OF THE SKIN, with an Analysis of 20,000 Consecutive Cases and a Formulary.** By L. DUNCAN BULKLEY, A.M., M.D. Fourth edition, revised and enlarged. Published by G. P. Putnam's Sons, 27 West 23d Street, New York City. 1898.

It is sixteen years since Dr. Bulkley gave us the first edition of this excellent little manual. This last edition has been carefully revised and rewritten. Practical usefulness rather than scientific completeness is the object of the work and makes it so acceptable to the student and the busy practitioner. Of special interest therefore, is the chapter on therapeutics which presents more than a hundred prescriptions adapted to varying diseases and conditions. These are indicated by number in the text of the discussion of the various diseases.

**THE MICROSCOPY OF DRINKING WATER.** By GEORGE CHANDLER WHIPPLE. Published by John Wiley & Sons. New York City. 1899.

The authority of this author to speak upon this subject is based upon many years' experience in biological research in the laboratory of the Boston Water Works. The book has a twofold purpose. First, as a guide to the water analyst and the water works engineer, and second to stimulate interest in the purity and purification of our water supplies. With the first we have little to do but as physicians we are all interested in pure water. Many of the facts stated by the author will, we think, come as news to most of our readers. The conditions which favor the growth of animal and vegetable micro-organisms, the causes of various odors, colors, and tastes in water supplies, and the effect of these on the health of the community, the methods of purification best adapted to various conditions as demonstrated by the Massachusetts Board of Health, these are among the items of interest in the book to the general practitioner.

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**THE DAWN OF REASON, or Mental Traits in the Lower Animals.** By JAMES WEIR, JR., M.D. Published by The Macmillan Company, 66 Fifth Avenue, New York City. 1899. Price, \$1.25.

The study which physicians are giving to the mind of man and its influence on diseased conditions has naturally led to these investigations contained in this work. Recognized authorities have been fully consulted and quoted. But beside these, the great number of observations by the author make the book of peculiar value. Beginning with the simplest sense observations and continuing through consciousness, memory, emotions, tastes and affections, the author tries to establish the intimate relation between animal "instinct" and human "reason," which he maintains are the same in kind. Whether or not we agree with the conclusions, we can not fail to be interested and instructed by the great number of stories and incidents quoted and the skillful way in which they are used to prove the author's theory.

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**RECORDS OF URINARY EXAMINATIONS.** By HARRY MORELL, M.D., C.M. Published by J. B. Burr & Company, Hartford, Conn. 1898.

This volume contains 102 blank urine reports with duplicates of each. One sheet is detachable, and by the use of a carbon paper, one sheet can be removed and a copy kept for future reference. The charts are about 9x5 in size and complete in form. The book thus furnishes for a small hospital or for a general practitioner just what is needed to keep the urine records, now considered so necessary in many cases in diagnosis, prognosis and treatment.

# ANNALS OF GYNECOLOGY AND PEDIATRY

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## ORIGINAL COMMUNICATIONS

### DISORDERS OF THE MENOPAUSE.\*

E. W. CUSHING, M.D.

IN attempting to gain a clear idea of this subject we are compelled to eliminate the various superstitions and false interpretations which, from time immemorial, have gathered about it. We have therefore the popular view of the change of life and its disorders, which embraces all the miseries which may befall a woman no longer young, beginning to feel the burden of years, and probably broken in health by all the vicissitudes of her life.

“But care, and sorrow and childbirth pain  
Left their traces on heart and brain.”

All the organic diseases of various kinds begin to show their full effects at about the age of 45 to 50 years. If the woman is not sound in all organs, that is the time when she is apt to break down, and of course the laity say it is the change of life; on the other hand, if there are no organic troubles, such symptoms do not develop, and the woman who was healthy before remains healthy, and so she is reputed to have passed safely through the change of life.

The same may be said of the various malignant diseases, which are prone to show themselves at about the time of the change of life. Whether a cancer of the uterus, or vagina or other organ

\*Read before the Maritime Medical Association, Charlottetown, 1899.

come at the age of 40 or 60, the patient and her friends attribute it to the change of life, and if no such disease appear, she rejoices to have passed safely through that dreaded period.

Of course, looked at in a large way, there is an element of truth in the popular view; that there is a climactery or critical period in the life of every individual of either sex, is a fact, the reason of which I have tried to indicate above. Briefly, the vitality with which we are all born into the world is always diminishing; the margin of reserve force is lessening; and at an age, varying from 45 to 55 years, there is very little margin to draw on. This is not confined to women, however, for it is seen in the fact that men are not accepted for enlistment above the age of 45, and those of our readers who are sixty, and many who are not so old, will realize the fact of the grand climactery in men.

Now in women the menopause, properly speaking, is only one feature of the change of life. The woman is no longer strong enough to bear and rear children, except in comparatively few cases. She has not the vitality to endure the continually recurring drain of menstruation, and so a kindly nature provides, or the inherited influence of environment has established the fact, that menstruation ceases at about the end of the ninth lustrum, varying much according to race and climate.

The disorders of the menopause then, are really only those which are in some way connected with the cessation of menstruation, and they are comparatively few and simple, while the disorders and miseries occurring at the period of the change of life or grand climactery, in either sex, but especially in woman, are many and various, and often severe.

Of late years the frequency of operations for the removal of the ovaries has caused the subject of the sudden and artificial menopause to assume great importance, and, as its symptoms and its disorders can be studied apart from the symptoms of advancing age and progressive disease, much valuable light has been thrown on the question of the menopause proper, by studying the history of the symptoms following the post-operative menopause.

Among the afflictions which are customarily attributed to the menopause are the most varied nervous manifestations, and disturbances of temperament, and even of mental condition. But here also it is necessary to discriminate between what is due to the cessation of menstruation, and all the woes which begin to darken

the life of so many middle-aged women. For, at this period of life, many women are profoundly unhappy, and not without reason. Beauty fades, they grow fat and gray, and feel their age in all their social relations. Children have grown up and no longer need the mother's care or obey her will, sexual feeling usually diminishes in a marked degree, and the unhappy woman learns that the husband who has been her life-companion is unfaithful to her, and gives his love and his money to some young woman. Or husbands die, or fail, and pecuniary troubles cloud the future, and embitter the present. Above all, there is the feeling that there is no proper sphere of activity left for the woman. She has no business, as a man has, to occupy her attention. She very probably has no interests which really engross her, and give her an aim in life. She is pushed by younger women out of positions in social life which she formerly held, and in general, as many a woman says, she has nothing to live for and wishes that she were dead. It is, indeed, a change of life; but it really has nothing to do with the menopause. Yet it is no wonder that at such a period many a woman's nervous system gives way, and she is profoundly wretched, hysterical, and despondent for a few years, until she gets used to her new relations with the world she lives in, and concludes to make the best of it, and acquires new interests, and settles down comfortably as an "old lady."

Returning then to the disorders of the menopause, we shall find that they are divisible into two classes:

I. Disorders of the circulation, (a) flashes, (b) flowing.

II. Disorders of the nervous system, (a) palpitations, (b) fainting, (c) hysteroneuroses, (d) psychic disturbances.

Besides these it is necessary to recognize, practically, a third division:

III. Complications, or disorders incident to the period of life during which the menopause occurs.

I. (a) To the first class belong the flashes or flushes, when the blood rushes suddenly to the surface of the body, particularly to the face and neck, causing a violent burning and tingling sensation and a high color, followed in a few minutes by a free and distressing perspiration. These phenomena are best observed in vigorous young women from whom the ovaries have been removed; for in them the flashes often come on within two or three weeks of the operation, and continue for several months, or even

for over a year. They may recur as often as once in fifteen minutes, but generally the intervals are somewhat longer. After six or eight weeks the flashes become less frequent, without diminishing much in violence, and finally they diminish, both in frequency and intensity, until they cease to recur.

The following description of her sensations is written by a very intelligent young lady, from whom the tubes and ovaries were removed 18 months previously, for a small fibroid of the uterus, with retroversion and incarceration. The tumor in the uterus has diminished in size during the interval of time, and the uterus is held in proper position by ventrofixation.

"I am afflicted regularly with 'flashes' at intervals of from 40 to 50 minutes, day and night. They are sometimes preceded by slight faintness, or chill; then, again, with dizzy feeling, or slight headache. Can almost feel myself turning pale, when it seems that the blood is leaving every part of my body; so noticeable is it that just previous to a 'flash' I have been asked: 'Are you cold?' 'Are you faint?' or 'Are you ill?'"

"In a few seconds, however, a sort of resigned feeling <sup>ing</sup> consciously takes possession of me, when suddenly a wave of heat <sup>of heat</sup> rushes over face, arms and upper part of body; face and hands <sup>hands</sup> turn a most uncomfortable red color; soon the heart beats <sup>very</sup> hard, and I can almost hear it thumping. Soon beads of moisture <sup>moisture</sup> begin to stand out on my forehead, chin, neck, at joining of lower <sup>of lower</sup> and upper arms, and on bosom, after which the heat permeates the lower part of body, to my toes.

"When a 'flash' is preceded by drowsiness, for some few seconds I can scarcely keep my eyes open—seem to be as in a dream, and arms and legs feel heavy. When preceded by a chill, hands and feet feel cold. Always before 'flash' my throat feels parched, and I am thirsty. 'Flashes' seem to be more severe after a hearty meal."

In the physiological menopause the same flashes are observed, although usually with much less violence, and they are apt to last rather longer, sometimes for two years or more. Although these are usually classified as disturbances of the circulation, they are properly nervous phenomena. The vascular system merely responds to the stimulus which causes blushing under emotion and is not in itself disordered at all. The whole subject, therefore, might be included properly under II.

(b) Perhaps the same might be said about the sudden attacks of hemorrhage which sometimes occur at about the time of the menopause, just as they do at puberty, and, indeed, occasionally at all periods of the sexual life of woman.

So many cases have been reported that it must be admitted that such hemorrhages really occur at the menopause, merely as a result of vaso-motor disturbances, and without any appreciable disease of the uterus.

Nevertheless a vigilant and painstaking scepticism should be the rule, for usually some complication will be found, which will account for the hemorrhages, especially if they are repeated, and recur at intervals covering a considerable space of time. The apathy and credulity with which the women attribute these hemorrhages to the change of life are only the result of the false teaching of the profession in previous times, when the pathology of uterine disease was not understood. Many a valuable life is lost because flowing at this time is attributed to the change of life, when really there is grave organic disease present and progressing.

II. (a) (b) The symptoms of palpitation of the heart, and of attacks of syncope, from which women suffer at the time of the climactery, are quite similar both in kind and degree to those with which a certain proportion of women of all ages are troubled. The only feature which is peculiar to the change of life is that women are often affected with these symptoms at that period, who have not been troubled in this way during their previous years, and who certainly have no organic lesion of the heart. Like the flushing and the flowing mentioned above, these symptoms therefore are to be understood as disturbances of regulation, not as diseases. The governors of the engine fail to act properly, and the machine "races" or slows down unduly; luckily it never stops altogether.

II. (c) (d) Likewise in regard to the hystero-neuroses and the psychic disturbances incident to the menopause, they do not differ at all from those which affect nervous and hysterical women at other periods of their lives, the only peculiarity is that they sometimes attack women who have always been free from such troubles.

It will not therefore be necessary or profitable here to describe the various symptoms and varieties of hysterical and hysterico-



neurotic disturbances, the alterations in temper and temperament, ranging all the way from caprice to melancholy, which may affect women at this change of their lives.

What is desirable to know is why these disturbances should affect some women at this time, and not others, and whether anything can be done to relieve them. Now it is evident that at the menopause we have to do with two processes, one the cessation of function of the ovaries and of the menstruation, which is the accompaniment of such function; the other is the involution of the uterus, which goes on, or should go on, *pari passu* with the diminution of ovarian activity. In listening to the histories of women who suffered with hysterical and nervous troubles at the menopause, I long ago observed the similarity of their symptoms to those of women who suffered from hyper-involution, or from originally insufficient development of the uterus. Careful study of individual cases led me to believe that the disturbances of the menopause are largely due to want of proper relation in time or in amount between the diminution of functional activity and the involution of the ovaries, and of the uterus, respectively.

When the function of the ovaries ceases too suddenly, for the uterus, or, what has the same result, when owing to congestion, endometritis, polyp, little fibroid, or other cause, the uterus cannot undergo involution when it gets its orders to do so from the ovary, then there are flashes and flowings perhaps, and in general such a train of symptoms as is now so well known in cases of surgical removal of the ovaries.

When, on the other hand, the uterus feels its age, or is exhausted, sooner than the ovary; when it would like to give up active duty and be put on the retired list, but cannot get permission to do so from the ovary, which keeps on stimulating it to continue menstruation, then a set of symptoms come on similar to those which are only too well known in cases of hyper-involution of the uterus after childbed or prolonged lactation or exhausting diseases; or, again, similar to the sufferings in cases of undeveloped uterus, where after puberty the infantile condition of that organ remains, while the ovaries develop fully.

Headaches, nervousness, hysterical manifestations of all kinds, depression of spirits, change of temperament always for the worse, even real melancholy and insanity; such are the woes which are added to the unpleasant conditions

inseparable from this age, and referred to in the beginning of this article. It is little to be wondered at then that the change of life is dreaded by women, and when they begin to suffer from the last set of symptoms they anxiously await the time when the kindly compensations of nature shall have set the whole sexual system at rest, and when they shall have learned to look out benevolently on the world in their new character of "old ladies." What trials, what heartburnings, what struggles with vanity, social ambitions, and all the feelings inherent in the nature of women, what tragedies in the realm of marital relations, not to speak of "envy, hatred, and malice and all uncharitableness" as the next generation of women come to the front and take possession of the world, what mental and moral sufferings, in short, are intermingled with the physical miseries of those few years of the change of life, few know, except the sufferers themselves, and those who know seldom say much about a subject which is so confidential and delicate.

III. It remains to consider the complications, or diseases incident to the time of life at which the menopause occurs, for it is the frequent occurrence of these diseases, which has caused the change of life to be dreaded, and to be looked upon as a serious crisis.

Of course in all cases where a patient comes under the care of the physician at this age, perhaps more than at others, it is important to make sure that the heart and kidneys are free from organic disease. This is the period when these organs are apt to give out, in either sex, and the vigilant physician is on the watch for the symptoms of cardiac, or of renal, trouble or of glycosuria.

Of the diseases more closely connected with the genital system, first in importance, first in gravity, and most serious if neglected is cancer of the uterus, or of the vagina. This is not the place to go into the symptoms or treatment of this formidable complication; it is only necessary to insist that in all cases of undue or irregular flowing it is absolutely necessary to make a thorough local examination, for in a large proportion of cases the cause of the trouble will be found to be a cancer. In this matter the knowledge and care of this generation of physicians must undo the mischief that has been wrought by the false teaching of previous generations; the errors and strange beliefs of the laity are only the doctrines which were taught in good faith by our predecessors

in the profession, who knew little or nothing of the early symptoms of cancer of the uterus, and held that irregular hemorrhages were natural to the change of life, but that this was an evil period when cancers were liable finally to develop.

Then came another generation who recognized "ulcers" of the uterus, which were diligently "treated," but who stubbornly refused to admit to themselves or the patients that the intractable bleeding ulcers were cancerous, until the disease was far advanced. Unhappily the world is full today of just such half-ignorant, half-stupid practitioners, who make their patients throw away their only chance of rescue, prolonging fussy and unavailing treatment until no radical measures can be taken.

On the other hand there are certain axioms which must be the guide of the modern practitioner, and through him of a laity better enlightened than in previous times. These rules are:

1st. All irregular or profuse hemorrhages about the period of the change of life are suspicious; they therefore require immediate, thorough and competent examination.

2d. All cases of incipient cancer of the uterus are easily diagnosed, by competent examiners, by the aid of the curette and microscope in doubtful cases, but usually by the presence and character of an ulcer.

3d. All cases of cancer of the uterus in the early stages are susceptible of complete removal by total hysterectomy, with less than two per cent of mortality in competent hands. There is in fact no organ of the body where cancer can be so totally and widely removed as in cancer of the uterus.

4th. A large proportion, probably a large majority, of cases where total extirpation of the uterus, for cancer, is performed early, quite early, never have relapse or recurrence in the scar or elsewhere. They are saved, and they enjoy not only life but the best of health.

May the day soon come when these simple facts are not only believed but acted on, and when consultants will not have to deplore the valuable lives sacrificed by a mixture of ignorance, incompetence and laziness!

The condition which, next after cancer, is the most frequent in cases of hemorrhage at the menopause is that where the uterus contains fibroid polyps in its cavity, or fibroid tumors of various sizes in its walls. Or there may be polypoid growths in the uterine

cavity which are not fibroid but of ordinary mucous and glandular type, yet all these may produce frequent hemorrhages, which reduce the strength of the patient very much. I have repeatedly removed such growths from women between 45 and 55 years, who had suffered from profuse flowing for long periods under the impression that it was natural accompaniment of the change of life, and that nothing could or should be done to relieve it.

Of special importance is the condition of adenoma of the uterus, which attacks women of this age, often after they have ceased to menstruate entirely, and, coming on with the symptoms of a simple hypertrophic endometritis, is perhaps treated by curetting, and apparently cured for some months, when the hemorrhages commence again, and unless hysterectomy is performed the disease gradually but inevitably passes into cancer of the body of the uterus. The diagnosis is easily made on the first curettement, by the abundance and the microscopical character of the pieces of tissue which are removed, and as soon as the diagnosis is made hysterectomy should be performed.

Simple endometritis, with more or less thickening of the mucous membrane, is very frequent at the time of the menopause, and it tends to delay the cessation of the menses, especially if there is any polypoid formation as above mentioned. It is easily cured by curettement and application of strong solution of iodine and carbolic acid, or of peroxide of hydrogen, to the uterine cavity. At the same time any raw surfaces at the angles of the os uteri, the result of old laceration, should be carefully repaired, for it is precisely in these neglected lacerations that cancer is so prone to develop. We have to consider next the cases where there is no undue hemorrhage, but, on the contrary, the menstruation either ceases, or is very scanty, and the menopause thus occurring is accompanied with nervous symptoms, hot flashes, or even severe hysteroneuroses. A local examination is also important in these cases; often some uterine trouble will be found to account for the symptoms; sometimes the uterus is retroverted, heavy and sensitive; sometimes it is apparently normal in size and position, but it is tender on pressure, and if a sound is passed into it the endometrium of the fundus is found to be extremely sensitive, and perhaps thickened. In both classes of cases appropriate treatment, by replacement and support, if necessary, and by dilatation of the cervix, and applications of carbolic acid or peroxide of

hydrogen to the endometrium, will usually have the happiest results.

In regard to the nervous symptoms great caution should be used not to commence a course of treatment with narcotics, which is apt to have disastrous consequences. If all local trouble has been diagnosticated and cured, and nervous symptoms still exist, attention should be paid to the general condition mentioned above. A kindly word and a little consolation will often go farther than medicine. Where the circumstances of the patient permit it change of scene, particularly foreign travel, is of the greatest advantage. Anything that will give the woman an interest in life and take her thoughts off herself is distinctly beneficial. Finally kindly nature comes to the rescue, and the tincture of Time, that mightiest of remedies, gently leads the sufferer out of the miseries of the change of life into the quiet and peaceful period of elderly existence.

Boston, Mass.

#### A REMARKABLE RESULT FROM THE USE OF ANTI-STREPTOCOCCIC SERUM.

A. G. DEARDORFF, M.D.

As the direct result of the use of anti-streptococcic serum (P., D. & Co.), I have just conducted to a favorable termination one of the worst cases of septic infection that I have ever observed. The case occurred as the result of an abortion performed in a very careless manner by a midwife, who supposed she had thoroughly cleared out the uterus. Three days afterward the patient was seized with faintness and obscure vision, and about an hour later I found her in a state of extreme depression. Had the venom of a poisonous serpent penetrated her circulation she could not have been more completely prostrated than she was when I saw her. The heart was very weak and the patient lay in a continued state of syncope. An offensive vaginal discharge was also noted. I immediately administered strychnin and digitalin and sent for my assistant. We decided that in her condition the patient would hardly bear an anesthetic, so we used the dull curette

without it. The uterus contained much thickened, foul-smelling material and a single putrid fragment of placenta, of good size. The uterine cavity was thoroughly flushed, then treated with potassium permanganate and again flushed with a solution of lysol. That night the temperature rose to  $103^{\circ}$  and the pulse rate to 130. The patient complained of pain in the left ovarian region, which I considered a symptom of circumscribed peritonitis.

The next morning I administered seven c.c. of anti-streptococcic serum (P., D. & Co.), and in about six hours the temperature declined to  $101^{\circ}$ ; a second dose of six c.c. was given in the evening. The heart acted badly for three days, but large doses of digitalis and some strychnine brought it up to a better condition. Yet the poison of the disease remained. I continued to administer the anti-streptococcic serum morning and evening, in doses of three or four c.c. for eight days. Mild mercurial purges were given every third day. After ten days of vigilant watching and careful treatment I had the satisfaction of seeing the temperature decline to the normal and convalescence begin. The pelvic exudate disappeared with no sequelæ and the patient made a good recovery.

With anti-streptococcic serum for my weapon; I now attack these terribly dangerous cases with a self-assurance that I never felt with any other mode of treatment. The patient and her friends are very much pleased and gratified by the wonderful success of the new plan of treating puerperal septicemia.

San Francisco, Cal.

## THE TREATMENT OF GONORRHŒAL SALPINGITIS.\*

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GONORRHŒAL salpingitis is now a well-recognised disease, but many of us can remember the time when the connection between "inflammatory disease of the uterine appendages" and gonorrhœa was by no means established.

When Noegerrath published his treatise in 1872, maintaining that gonorrhœa had dreadful consequences; that it was the main cause of pelvic peritonitis and sterility, and that it was practically an incurable disease, men first of all looked upon him as a wild dreamer and enthusiast. Then little by little, abundant evidence was found to corroborate most of his assertions, but it was only very slowly that his work received any recognition or support. It was not until some ten or fifteen years later that the seriousness of gonorrhœa in the female began to be generally recognised, and enterprising surgeons began to operate freely for inflammatory tubal disease by removal of the uterine appendages.

At first operation was generally limited to the removal of the appendages on the side chiefly or solely affected at the time when the operation was undertaken, but the after-history of these cases was not altogether satisfactory. In many instances extension of the disease occurred on the opposite side, and in a short time the patient was in quite as bad a condition as before operation, so that a second section was needed for the removal of the remaining appendages.

In consequence of this, attention was directed to the advisability of complete removal of the appendages in all cases of operation for "inflammatory disease." Papers were written on the subject—notably one by Mr. Tait—advocating this treatment, and for a considerable time it was accepted as final that thorough removal of the uterine appendage by abdominal section was the one and only cure for gonorrhœal salpingitis.

But there were difficulties in the carrying out of this advice,

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and the results, while in some cases very successful in others were decidedly disappointing. In separating the adhesions, which were often very dense, the bowel—particularly the sigmoid flexure and rectum—was liable to injury, and injury in inaccessible regions. Further, the ovary, when peeled or torn away from its surroundings, left some of its tissue behind it, and with this there was often persistent menstruation: the uterus, which had evidently been the centre of infection throughout, remained untouched, and in a small proportion of cases, notwithstanding the utmost care, local peritonitis and fæcal fistulæ resulted, while in others, notwithstanding the utmost thoroughness, menorrhagia and pain persisted after operation, the hemorrhage in some of these cases being rather aggravated than otherwise by the means undertaken for the cure of the disease.

In the meantime, while this experience was forming, or, at all events, before it had been fully formed, Pean and Segond in Paris, Doyen of Rheims, and Landau of Berlin, recognising the gonococcus as the source of the disease, and gonorrhœal endometritis as the starting point of infection for both Fallopian tubes, not only argued with true logical deduction that the uterus should be removed, but proceeded directly to put this reasoning into practice and began treating cases of inflammatory tubal disease by extirpation of the uterus as well as removal of the tubes. This was done by the vaginal route, and the result was, on the whole, more satisfactory perhaps than any treatment previously adopted. At all events the treatment was a radical one, and if the patient made a satisfactory recovery there was, of necessity, no further trouble from uterine hemorrhage, or from the pain and distress accompanying the pelvic congestion recurring at each menstrual period.

This practice has never been thoroughly adopted and followed in England as a primary procedure, but many English surgeons (including myself) have been over and over again glad to avail ourselves of vaginal hysterectomy as a cure for rebellious cases, and it would be difficult to speak too highly of its value when every other means has failed.

On looking back over this period of strenuous surgical effort—whatever may have been its mistakes of enthusiasm and misdirected energy—we cannot withhold a hearty acknowledgement of the courage, the perseverance, and the honesty of purpose



which marked in the main each point of progress, or a warm appreciation of the splendid saving of life which has attended one department of the work from the very beginning—viz., the operative treatment of pyosalpinx.

It must, perhaps, be remembered on looking back over this period that the issues involved in the work then beginning were by no means so simple and definite as represented in my imperfect sketch. Side by side with the question of the cause of pelvic inflammation and its treatment was the question of its seat—whether it was usually within the peritoneum (“perimetritis”) or in the cellular tissue outside it (“parametritis”)—and with the elucidation of this problem Birmingham was, perhaps, more directly concerned than with that which I am now more immediately discussing. In addition to these two problems, a subsidiary one, but one more pressing, was the question of the danger of this “pelvic inflammation” if left alone, and there can be no doubt that some operators were so impressed with this danger, and so impressed it on their followers that for a considerable period the finding of any inflammatory tumor in the pelvis was considered a valid reason for immediate abdominal section.

All this has been vastly altered during more recent years. With greater knowledge and more certainty of diagnosis there is more careful differentiation of grades of inflammation and the necessities of individual cases; we know better what may be expected from rest and medical treatment, and operation is reserved for the minority of cases—or, if this goes too far, it is certainly not practised anything like so frequently as in former years.

But what about these cases—cases of undoubted salpingitis—that are not operated upon? Do they, if they improve under rest and hygienic treatment, necessarily relapse and get worse again, as we formerly thought, or do they get permanently well?

These are questions which I felt needed answering, and as I could not find any answer that I could trust I set myself to study the disease as well as I could, hoping to find the information I needed by experience.

If I am not in a position to speak as definitely as I should like this evening, I feel I have learnt during the past thirteen years a few facts about the history of the disease and its course under treatment that influence my own practice and justify me, I believe, in bringing the subject before the notice of my colleagues.

One of the first things that struck me in the clinical study of salpingitis was the frequency of a syphilitic history; indeed, in many cases it was more easy to elicit this than any clear history of a gonorrhœal discharge, and for some time it was a question with me whether syphilis was not a factor in the causation that had been overlooked.

Gonorrhœa—the gonococcus—was perhaps the only source of gonorrhœal inflammation in the mucous membrane of the tube, but it was the sole cause of tubal obstruction, tubal distension, and pyosalpinx.

In some cases of pyosalpinx possessing a syphilitic history, I have found at the operation a clearly defined nodule of thickening at the uterine end of the tube—a nodule which on section had all the appearance of a syphilitic gumma. In all cases of marked pyosalpinx the abdominal ostium of the tube is more or less occluded by tubal and peri-tubal swelling, and it is at all events possible that a syphilitic thickening of the tube may assist in the contraction of the abdominal ostium which appears to be the necessary and immediate cause of tubal distension from retained secretion.

On consideration, however, of other causes of acute pyo-salpinx in which there could be no syphilitic history, and in which the obstructive swelling at the uterine end of the tube was amply accounted for by the acuteness or severity of the inflammation surrounding it; on consideration, too, of what I may term the natural frequency of the two diseases in the same individual, I felt that the point—interesting as it might be—was of little practical value, and that in all probability the ratio of syphilitic and non-syphilitic cases was not appreciably different to the ratio of syphilis with gonorrhœa, and gonorrhœa alone, irrespective of tubal disease.

So far, if my work had not been misdirected, it was barren of any very profitable result. But, after a time, another point began to engage my attention, which bids fair to be of greater value.

This point I may perhaps express as *the greater tractability of gonorrhœal salpingitis in syphilitic subjects*. In other words, after some months or years of treatment I found a perfection of cure in my syphilitic cases that I failed to secure in cases of pure and uncomplicated gonorrhœal origin.

Before we consider the reason of this, and as I do not want

you to take anything for granted, I will run over as shortly as possible a few of my cases which are more prominently in my mind.

Mrs. C. is a patient I have known and watched for fifteen years. When first I saw her (in 1884) she was suffering from syphilis contracted from her husband, and had recently had a miscarriage (at four months) which I considered to be due to syphilitic disease.

On recovering from the miscarriage she almost immediately showed signs of gonorrhœal infection—a dangerous time for infection to take place as the uterus is temporarily dilated. She had gonorrhœal vaginitis and the inflammation spread upwards. Pelvic inflammation followed, and a mass formed in the pouch of Douglas, having all the characters of an enlarged or distended tube. For nearly the whole of the next year (1885) she was rather seriously ill—a constant patient—and was kept on mercurial and iodide treatment. The tubal tumors did not materially alter, and I was thinking of removing it by operation, when in September of this year she unexpectedly became pregnant. The complication of a (possibly) syphilitic pregnancy, very liable to abort, and gonorrhœal salpingitis was specially awkward from a surgical point of view, and as the general condition of the patient had improved, I decided to wait, maintaining the anti-syphilitic treatment mainly for the sake of the coming infant. The patient went to her full time and was delivered on May 29th, 1886, of a boy, who remains alive and well to the present date. After pregnancy was over the tumor of the damaged appendage was still to be felt. Occasional, but no persistent treatment was maintained, and although the tumor steadily decreased in size and fixity, I find from my notes of occasional consultations after this date that it was not until 1890 that all traces of the tumor had disappeared. This disappearance has been final.

About eighteen months or two years ago the patient's husband died. She has rather recently married again—much more happily, I believe—and is now (at the present date, November 14th, 1898) about six months' pregnant, without a trace of discoverable disease on the most careful examination.

Mrs. D. I have known and occasionally attended for eighteen years. A short time after her marriage she was infected by her husband with syphilis, and left him. For some twelve years she

maintained herself, every now and then having some transient syphilitic symptom or affection which received temporary treatment, but the treatment was left off as soon as the symptom was relieved. On the whole, she had fairly good health, and at no time did she have any pelvic, menstrual, or vaginal trouble.

In 1892 a reconciliation was effected with her husband, and she returned to him. Early in 1895 she began to suffer with pain in the right side, pain in the right leg and hip, worse on standing or walking, worse on changing position, not worse at night. At first nothing definite could be found. She went to the seaside for a change, and while there was seized with violent peritonitis, during which, I understand, her life was despaired of. She had the advantage of every comfort and advice, and a London opinion was obtained for her. After some weeks of careful nursing she returned to Warwickshire, a thorough invalid, and I again saw her. I then found marked disease of the uterine appendages on the right side. The inflammatory mass formed a rather large tumor, and the parts were fixed, but there was no fluctuation, or evidence of any marked collection of pus. I thought an operation would be necessary, but the patient wished to avoid it, and I was ready to try the effect of further treatment. Knowing her old history, and how well she responded in former days to anti-syphilitic treatment, I gave her grain doses of hyd. c creta and five to eight or ten grain doses of iodide of potassium. This she has taken ever since, and with steady improvement—improvement without the slightest relapse. She has now no trace of disease on bi-manual examination. She is in robust health, and can walk ten or twelve miles with enjoyment.

Mrs. E. is a patient I have also known for about eighteen years, though I have only very rarely attended her. During a large portion of this time she and her husband have been under the care of Dr. Bull, of Sparkhill. He has attended both of them for gonorrhœa and syphilis.

In July, 1895, I was asked to see Mrs. E. in consultation with Dr. Bull. She had been confined to her bed for some weeks. She had severe abdominal and pelvic pain, and her temperature had been varying between 100° and 102° F. I found well-marked tubal disease—a mass on the right side reaching above the groin—but the exudation was hard and resistant, and there was no evidence of any large collection of fluid.

I advised mercury and iodide as in the previous case, arranging, however, to see her again if there was no improvement, so that operation might be undertaken if necessary. From this date the patient steadily improved. I saw her nearly a year afterwards, and there was no trace of the old disease. I wrote to Dr. Bull last week, asking for news of her. He states:—"Mrs. E. is in good health, and is now managing a business." This patient has had a child since her attack of salpingitis, but it was born at seven months and only lived one day.

Mrs. F. was brought to my hospital out-patient room on February 26th, 1896, by Dr. Vince. She was 20 years of age, and had been married nineteen months. She had one child, living, and of good general health. Pain had been complained of in the left side for six months. This was steadily increasing, was worse one week after menstruation, and prevented her from attending to her duties. The case was already recognised as one of gonorrhoeal salpingitis, and my opinion was asked regarding operation. I found a hard, tender mass to the left of the uterus, rather fixed, and agreed with the diagnosis already made. I had some talk with Dr. Vince regarding my experience of these cases, and asked him if there was any history of syphilis as well as of gonorrhoea. On March 3rd I received the following note from him:—"Since seeing you I have found there is a distinct history of syphilis in the husband. He is under me now with brain trouble, probably gumma. He has a gonorrhoeal discharge at the present time, and the baby is practically blind from gonorrhoeal ophthalmia." I thought it quite possible that the case might improve with specific treatment, and ordered the patient a mixture of the red iodide of mercury (gr. 1-5) with iodide of potassium (5 grs.) to be taken three times a day (a formula which I use largely for continued administration). This she has now taken continuously for nearly three years, and with steady improvement—improvement in which there has been no history of relapse whatever. The recovery has been slow but sure and uninterrupted. More than a year after the treatment was begun I find this note:—"Appendages palpably diseased on both sides, but not tender."

Today (November 10th, 1898) I have examined her and find that the right ovary is still fixed, but this is the only pathological condition to be found. The patient herself states that she is perfectly well, has no pain or discomfort, and wishes to know if she may discontinue her attendance.

I could, if I liked, supplement these cases by several others, but the four I have cited will, I think, suffice. Everyone must acknowledge that they are capital examples of cure after severe gonorrhœal salpingitis. One patient can walk twelve miles with comfort, another manages a business which she has taken up since her illness, another who has only just regained her full health has, nevertheless, through the time of treatment, been attending to the cares of her family and the needs of her syphilitic husband, while another, after seven years of freedom from disease, has buried her miserable past, married again, and is six months pregnant with the first child of a second family.

Can anyone show similar cases of recovery after gonorrhœal salpingitis in non-syphilitic cases? I confess that until quite recently I could not produce them or anything really approaching expectation of or belief in similar results since the publication of Professor Sinclair's book in 1888.

If the cases I have brought forward then are at all exceptional in their recovery to what are we to attribute the happy issue?

Is the poison of syphilis in my way antagonistic to that of gonorrhœa? I do not think that this can be maintained for a moment. The one disease does not in any way prevent the other, and *untreated* cases of both diseases in the same individual are among the very worst that I have encountered. I am forced to the conclusion that the treatment of the case is the main factor in recovery, and I am far more interested in putting as clearly and forcibly as I can this fact before the notice of the Society than in maintaining any special theory of its mode of action. At the same time, when I consider the difficulty in the untreated disease, not so much of obtaining temporary solution of inflammatory products—this can often be obtained by simple rest in bed—but of obtaining a cessation of relapses and a steady progress towards permanent recovery, and when I find this recovery repeatedly following a prolonged and uninterrupted course of special treatment, I question whether this effect is attained simply by promoting absorption, but am more inclined to believe that the mercury collected in the tissues of the body after persistent administration has some direct antagonistic action to the vitality and spread of the gonococcus in the deeper layers of the mucous and in the sub-mucous tissues. In contradistinction to the opinion expressed by most writers of the last decade I believe it may be possible to

destroy the power of latent gonorrhœa, as well as that of distinctly local and acute affection, and that this may be attained in a marked degree by the use of the very same means by which we attack the poison of syphilis.

Since coming to this conclusion I have treated several cases of pelvic gonorrhœa uncomplicated with syphilis by mercury and iodides, and, in every case in which it has been possible to continue supervision and treatment, I have had very similar results to those already reported. It will be obvious, however, that in most of these cases the duration of treatment has been as yet insufficient to fully test the value of permanence of its results, and that without general acceptance of the principles on which the treatment rests there is, and will be no likelihood of obtaining the same hearty coöperation on the part of the patient and medical attendant that is so well and cheerfully given in syphilis. One case in point is that of Mrs. G. She came to my out-patient room on September 23rd, 1896, with the history of abdominal and pelvic pain of some months' standing. She was also suffering from a chronic vaginal discharge. On examination I found that both of the uterine appendages were inflamed and adherent—that on the right side was adherent to the uterus only—that on the left was adherent to the pelvic wall. On October 22nd I put her on the biniodide mixture to which I have already referred. She took it during October, November, December and January, and at this date was so much better that only faint traces of any disease remained in the pelvis, and she herself refused further attendance. For half a year I did not see her. She returned on July 8th, 1897, complaining as before. Treatment was resumed, and she has continued it until the present date. The uterus is perfectly free and movable, and there is no trace of disease to be found on examination.

Another case of different type—recent and acute (the notes of which are entirely furnished by the patient's medical attendant), may fitly close the series to which I ask your attention at this stage of my paper.

"Mrs. H., æt. 30, has three children. The last child was born on March 25th, 1898, and a good recovery was made from the confinement. After a short visit to some friends in the following July, Mrs. H. returned home on July 16th in the best of health. On July 19th she felt some vaginal irritation, followed by vaginal

discharge, and on July 22nd (the doctor states) I was called in to see her. I found her in bed, suffering from great abdominal pain, more especially on the right side of the abdomen, and from a profuse purulent discharge from the vagina. The temperature was 101° F., and in the evening this rose 104° F. On inquiry and examination of the husband, I found that he also had a discharge from the urethra, which, to my mind, was a typical gonorrhæal discharge. As important questions were involved in the diagnosis, specimens of the discharge were sent to London for bacteriological examination, and gonococci were found in abundance.

"The pain, temperature, and discharge continued in spite of douching and other remedies. On August 9th, Dr. Annie Clarke saw her in consultation, and found the uterus fixed and the right half of the pelvis completely roofed by hard inflammatory swelling.

"On August 21st acute pain was complained of on the left side of the abdomen.

"On August 31st, it seeming probable that some operative interference might be needed, Mr. Taylor, of Birmingham, was called in. Gonorrhæal salpingitis, with its attendant sub-peritoneal exudation, was found on both sides, but at only one point was there any indication of possible 'pus' formation.

"Specific treatment was advised in the form of a biniodide mixture, and suppositories of ichthyol were ordered for vaginal use.

"From ten days to a fortnight after this date there has been steady and continued improvement. The patient got up for the first time on September 25th."

In a letter dated November 14th, 1898, the doctor writes:—

"I am glad to tell you that at last our patient is out again, free from all pain and discharge, but naturally very weak after her long and trying illness. I made a vaginal examination last week and all that was to be felt was a hard, cord-like band running across the roof of the vagina on the left side. The right side was apparently quite normal."

The view of the disease and its treatment which I have presented for your consideration has not only its medical but also its surgical aspect.

If we may hope for some radical control of pelvic gonorrhœa



from medicine not only will operation be less frequently necessary, but partial operations which were formerly derided and stigmatised as useless will find a legitimate use, and prove, in conjunction with medical means, a higher and better method of treatment than that of complete removal of the appendages so strongly urged in former years.

For instance, the free opening of pus-cavities without ablation of the uterine appendages or the removal of a pyosalpinx of one side only when the tube and ovary of the opposite side are so far free from disease and perfectly healthy, may be good practice, and is sound in principle if we can guard against the extension of disease.

As an adjunct or handmaid to surgery, too—after operation had been performed—the specific treatment of the patient may sometimes ensure a success that otherwise might be wanting. When the wound refuses to heal, the stitches are ulcerating out—the drainage track is sloughing—the temperature hectic and the appetite wanting—when the case seems slowly going to the bad some two or three weeks after the immediate danger of the section has been successfully passed (a not very uncommon sequel after abdominal section for pelvic gonorrhœa with abundant pus-formation and almost confined to this class of case), the power of the biniodide to improve the condition in my own hands has been marked and almost immediate in its action.

If my contention is right, we may hope from the use of specific treatment, for a selective action in cases before operation—limiting the necessity of the latter—for a freedom of choice that was formerly unknown during operation of various methods more or less conservative, and finally (after operation) for its influence as an aid to recovery that may materially improve both immediate in its action.

This brings me to the consideration of pyosalpinx and its treatment.

I incline to the belief—based mainly, perhaps, on clinical and operative observation—that dangerous pyosalpinx is but rarely a purely gonorrhœal disease, that it is usually a product of mixed infection, and that the more dangerous element comes from the intestinal tract.

It is always—or nearly always—started by gonorrhœal inflammation, but so long as it remains a sac of purely gonorrhœal

pus it is usually small and only rarely dangerous. But as the pus-sac enlarges it it comes into immediate relation with the bowel, and usually with the sigmoid flexure and rectum. The pus-sac is infected from the neighboring bowel—like a broad-ligament pregnancy under similar conditions—the condition becomes urgent, the patient cannot sleep for pain, and the temperature, though sometimes unreliable, may rise to high pyrexia.

Then operation is needed, and no unnecessary delay is permissible, and the operation I wish to recommend with the utmost force of which I am capable is that of posterior vaginal cœliotomy—the thorough opening of the pouch of Douglas from the vagina—the digital and bi-manual exploration of the tumor or tumors from this situation, the tapping of all pus-cavities deliberately carried out, the enlargement of all openings thus made, and the establishment of pelvic drainage from all infected parts by a tampon or tampons of iodoform gauze.

If this operation is done as I have advised—by free incision (no puncture or simple tapping is sufficient), the urgent symptoms are at once and thoroughly relieved, a condition of imminent danger of death is converted, sometimes as if by magic, into one of peaceful rest and happy convalescence.

The maximum of relief—I speak advisedly, for the peritonitis following removal of a double and adherent pyosalpinx is often severe, and the after results in no way better than that attained by the operation I am advising—the maximum of relief is attained with the minimum of danger and the minimum of injury to the sexual organs concerned. I have repeatedly employed this method of treatment during recent years and have followed it up in most cases (so far as I have been able to do so) by specific treatment. In each of these cases I have been more and more satisfied with the efficiency of the means employed and impressed with the vast superiority of this operation to the removal of the tubes by abdominal section.

The following cases may be taken as recent examples of its value:

Mrs. I., æt. 28, had been married four years. Her husband confessedly had contracted gonorrhœa since his marriage. Six weeks ago the patient had a green discharge from the vagina, and for four weeks had suffered with severe abdominal pain.

I saw her on the evening of May 25th, 1898, in consultation with Dr. Miligan.

She evidently had some general acute peritonitis. The abdomen was distended and tympanitic; the legs drawn up. She had frequent vomiting, a pulse of 120, and a temperature of 103° F. She was very feeble, very restless, and crying with pain. On vaginal examination a mass was found in the pouch of Douglas, and pushing the uterus to the left. The tumor was acutely tender. A dose of calomel was ordered to be given at once, followed by frequent enemata, and it was arranged to move the patient to my house for operation on the following day. On May 27th I opened the pouch of Douglas, separated adhesions, and evacuated a large quantity of foul pus from the right Fallopian tube. The abscess cavity was washed out and packed with iodoform gauze.

In the evening her pulse was 96. She was comfortable; her bowels had been opened with a single enema, and she had a fairly good night's rest afterwards, "the first good night for weeks." The patient made a good recovery.

Mrs. J., æt. 24, married four years, came to my out-patient room on August 25th, 1898, complaining of abdominal pain and dyspareunia, which had been increasing for six months. On examination I found what I took to be an enlarged and tender left ovary that was evidently the source of the pain complained of. I ordered a mixture of bromide and viburnum, and gave some general hygienic advice.

On October 27th, the patient was brought to the hospital evidently suffering from intense pain. She was crying, and stated that she had had no sleep for four nights on account of this. Her temperature was 101° F. On again examining her I found a fixed tender mass to the left of the uterus pushing the latter to the right. This was acutely sensitive to touch, and I believed it to be caused by a distended tube. On closer inquiry into her case I found that there was a distinct history of copious purulent vaginal discharge some three years ago. I altered the diagnosis to one of acute pyosalpinx, and admitted her into hospital. Operation was done on October 31st. I opened the pouch of Douglas through the posterior fornix and evacuated some dirty and rather foul serum from the pelvis. On examination through the opening thus made I found the left tube was dilated into a large pus-sac, having thick walls, and being very adherent. I first tapped this with a trocar and cannula, and afterwards opened up

the punctured incision with my fingers. One or two secondary collections of pus were also set free. The cavities were sponged out and packed with iodoform gauze.

The patient, who had been before the operation almost a type of misery, immediately altered. In the morning she was smiling, happy, and good-tempered, and said that she had passed the best night she had had for several weeks. She has made uninterrupted progress, and leaves the hospital today.

I do not wish it to be inferred that I regard posterior vaginal coeliotomy as the only operation to be undertaken in pyosalpinx. When the tumor is large and prominent or "presenting" towards the abdominal aspect, abdominal section may prove a better means of access to the seat of mischief. Wherever this seat of mischief is most accessible, *there is*, in nine cases out of ten, the best point of attack.

I will not, however, dwell on this part of my subject, but pass on to the consideration of the *limitations to success* in the treatment of gonorrhœal disease, and any means we possess of avoiding them. These may be shortly considered under three heads:—

- (a) The severity or complications of the disease preventing recovery.
- (b) The carelessness and distaste of the patient for any prolonged treatment.
- (c) The effect of adhesions in causing sterility and occasional pain.

(a) The first is undoubtedly the most important. In spite of all that may be done in the future I quite believe that there will remain a residuum of intractable cases, and among these I would particularly point out cases complicated with uterine fibroid or anything which tends to cause or increase uterine hemorrhage. When bleeding is severe no patient or medical attendant will continue a course of treatment which is not immediately directed to the stopping of the hemorrhage. In addition to this, both mercury and iodides in some people appear to increase the tendency to bleeding. In all of these cases I recommend vaginal hysterectomy, with or without removal of the appendages. It is not only the most rational operation in theory, but is productive of the best final results when conservative surgery is hopeless.

(b) The carelessness and distaste of the patient for treatment will often be an annoying feature and source of failure, as it is

often in syphilis. In some cases the biniodide mixture causes nausea, and even vomiting. When this is the case smaller doses may be tried, or recourse may be had to a method of treatment, which is occasionally very useful. Only one dose of iodide is given in the day, but this is a large one—from 15 to 20, 30 or 40 grains.\* This is taken the last thing before going to sleep. Every other night, or every night if necessary, a Plummer's pill (pil. hyd. subchlor. co.) is taken at the same time. The patient keeps all her medicine in her bedroom, and only needs to remember it on retiring to rest.

(c) The effect of adhesions as a limitation to full recovery is a more important matter. Occlusion of tubes and peri-tubal adhesions, consequent on gonorrhœal salpingitis, do not partake themselves of any specific character and must be regarded rather as secondary mechanical results of the inflammation which has been caused by the pelvic gonorrhœa, differing in no essential from peritoneal adhesions elsewhere, such as those caused by injury, by appendicitis, or by gall-stones.

Their absorption and disappearance will not, therefore, be secured by the cure of the gonorrhœa. The cure of the gonorrhœa will be the necessary preliminary, but the actual disappearance of adhesions will probably depend on the perfection of the general health and the power of relative mobility enjoyed by the adhering organs.

As a necessary consequence it will, I believe, be found that sterility will result or persist when the appendages of both sides have been attacked by disease before any treatment has been begun. But if energetic treatment is started when only one side is affected and the opposite tube is healthy, one may reasonably hope that the healthy tube will remain healthy and the patient retain her fertility. Such is the explanation, I believe, in both of the cases I reported at the beginning of my paper, in which conception took place at a period subsequent to the salpingitis, while in the acute case of pelvic gonorrhœa, notwithstanding the comparatively short duration of her illness, both sides have suffered and future fertility is hardly to be expected. I shall be interested to watch this case and see if my forecast is justified.

For similar reasons a remainder of occasional and slight pain may be rather frequently expected in the most favorable cases—such a sequel as is often met with after an ovariectomy from ad-

hesions to the stump. This depends mainly, I believe, on the involvement of intestine or omentum in attachments.

If these escape the patient has no pain—if they are involved, the patient may have occasional discomfort and sometimes acute, if transient, colic.

The consideration of this subject would not be complete without some reference to prophylaxis, and to the treatment of acute and chronic gonorrhœal vaginitis. In the acuter forms of gonorrhœal salpingitis when specific vaginitis and endometritis are also present, and in gonorrhœal vaginitis when it may still be possible to limit the upward spread of the disease, local treatment is of very great and indeed of primary importance.

As regards the gonococcus, the strongest and best local germicides known (according to Neisser) are the nitrate of silver, the perchloride of mercury and ichthyol, and it is on one or more of these that chief reliance should be placed.

In all cases of acute gonorrhœal salpingitis in which the uterus and vagina are also affected, I use a vaginal suppository of ichthyol (10 per cent) every night and a douche of crude acetic acid during the day. In cases of complicated gonorrhœal vaginitis, especially in hospital practice, I generally use a vaginal suppository of silver nitrate (gr.  $\frac{1}{4}$ ) every night, and the same vaginal douche of pyroligneous acid  $\mathfrak{z}$ ss. and Oj) twice during the day.

If, as only very rarely happens, the patient comes almost immediately after exposure to contagion it may be advisable to disinfect the vulva, vagina, and cervix manually, as in a vaginal cœliotomy.

In one case of vangitis of about two days' duration, in which the patient was already feeling considerable and rapidly increasing discomfort, but in which, it is only fair to say, the gonorrhœal origin was never thoroughly established, I did this with the very best result. The disinfection was repeated three times, and the patient was directly cured with no retension or relapse.

In cases where there is no evidence of endometritis or tubal disease the local treatment advised contains all that is required, and this should be applied in the simplest possible manner. No unnecessary examination should be made, and the use of the sound should be forbidden as most dangerous.

It is only in cases of tubal disease, where the appendages are evidently affected by gonorrhœal inflammation, in gonorrhœal

rheumatism or arthritis, in gonorrhœal endocarditis, or in persistent and incurable discharges due to gonorrhœa, that the local treatment must be supplemented by the administration of mercury and iodides, as described in the earlier sections of my paper.

To emphasize and make ready for discussion the main points contained in this communication, I have prepared a short abstract, or *précis*, of the propositions I am disposed to maintain, and on which I invite the criticism of my colleagues.

*First.*—That a large number of women who are suffering from tubal disease have been at some time or another exposed to the infection of syphilis as well as of gonorrhœa. That these undoubtedly show marked improvement after a prolonged course of mercury and iodides, and in the course of this treatment unless acute pyosalpinx intervenes (in which medicine is useless) it is the rule rather than the exception for all gross physical signs of disease to slowly and permanently disappear.

*Secondly.*—That many cases in which there is no history of syphilis; including cases in which there is the unmistakable history of gonorrhœa, pure and simple, as the sole cause and starting-point of tubal disease, do similarly improve and get permanently well under the same course of treatment, provided always that the disease stops short of acute pyosalpinx and its dangerous complications.

*Thirdly.*—That acute pyosalpinx is peculiarly liable to occur in the first place on the left side of the body, and its special severity is probably due to secondary infection from the rectum. That cases of pyosalpinx, whenever possible, should be treated by free incision of the posterior vaginal fornix, by thorough exploration and emptying of all pus-cavities from the pouch of Douglas, and by iodoform gauze drainage. That this is far preferable to the older operation of removal of the appendages which is not only much more dangerous, but is peculiarly liable to be followed by fœcal fistula, an operation sequel sometimes worse than death itself.

*Fourthly.*—That such cases of mixed infection and acute supuration treated by operative evacuation of the pus, with or without removal of the appendages, do sometimes not only recover but remain permanently well without further treatment, the acuteness of the inflammation appearing to terminate the process of infection. In other cases, recovery is not so complete or relapses

are met with, and these cases should be followed up by a course of specific treatment, the beneficial result of this being often immediately manifest when the wound tissues are unhealthy and the healing is delayed.

*Fifthly.*—That occlusion of the tubes and peri-tubal adhesions consequent on gonorrhœal adhesions have no direct specific causation, and must be regarded rather as secondary mechanical results of the local peritonitis which has been caused by salpingitis.

Their absorption and disappearance will not therefore be necessarily secured by the cure of the gonorrhœa, and sterility may persist although gonorrhœa is entirely eradicated from the system.

*Sixthly.*—That in gonorrhœa of the pelvis there will probably remain a residuum of intractable cases, particularly cases of complication with other diseases such as fibroid of the uterus. That in these cases operative removal of the organs affected will still be required, and that vaginal hysterectomy whenever possible, with or without extirpation of the uterine appendages, is not only the most rational operation in theory but is productive of the best final results.—(The Scalpel, June, 1899.)

## AMERICAN PROCTOLOGIC SOCIETY.

First Meeting held at Columbus, Ohio, June 6-7, 1899.

A new national medical association, to be known as The American Proctologic Society, was organized Wednesday, June 7th, 1899, at the Chittenden Hotel, Columbus, Ohio, during the meeting of the American Medical Association.

The society is formed for the study of the diseases of the rectum; and its membership is composed of prominent rectal specialists of the leading cities in the United States.

The following officers were elected:

President: Dr. Joseph M. Mathews, Louisville, Ky., the retiring President of the American Medical Association.

Vice President: Dr. James P. Tuttle, New York City.

Secretary-Treasurer—Dr. William M. Beach, Pittsburg, Pa.

Board of Counsellors: Dr. Samuel T. Earle, Baltimore, Md.;



Dr. A. Bennett Cooke, Nashville, Tenn.; Dr. J. Royal Pennington, Chicago, Ill.

Wednesday morning a demonstration was made by Dr. T. C. Martin, of Cleveland, at St. Anthony's Hospital, showing the newer methods of inspection of the rectum. Thursday morning, Dr. Samuel T. Earle, of Baltimore, conducted a clinic demonstrating a new operation for removal of hemorrhoids.

The association organized with these charter members: Dr. Joseph M. Mathews, Louisville; Dr. Joseph B. Bacon, Chicago; Dr. Leon Straus, St. Louis; Dr. B. Merrill Ricketts, Cincinnati; Dr. Thomas Charles Martin, Cleveland; Dr. S. G. Gant, Kansas City; Dr. J. Royal Pennington, Chicago; Dr. James P. Tuttle, New York City; Dr. Samuel T. Earle, Baltimore; Dr. Lewis H. Adler, Jr., Philadelphia; Dr. Charles C. Allison, Omaha; Dr. A. Bennett Cooke, Nashville; Dr. George J. Cook, Indianapolis; Dr. George B. Evans, Dayton, O.; Dr. William M. Beach, Pittsburg.

The President, Dr. Joseph M. Mathews, of Louisville, Kentucky, delivered an interesting address setting forth the importance of giving rectal diseases special study.

He said: "It is a notorious fact that there is more quackery practiced in the diseases of the rectum than in any other department of medical practice. This state of things is to be deplored. After an experience of twenty years in this work, I wish to say that these important and most serious affections should be entitled to a separate and special consideration; and who will dare to say that those who practice them are not entitled to the privilege of forming themselves into a society? Nothing will contribute more to the advancement and to the elevation of this long neglected subject than this contemplated organization.

"The principal part of our knowledge must ever come from comparing our own observations with those of others; then how apparent to all must be the utility which the Society of Proctologists will afford in opportunities for the mutual communication of thought and action."

Dr. Tuttle read a paper in which he stated that the term *Pruritus Ani* has for the scientific physician only a vague significance, but for its victims it is portentous with evil. He stated, after enumerating many of the characteristic symptoms, that it should be dealt with, first constitutionally, second locally.

He said that he was not a believer in *pruritus ani essentialis*.

The constitutional condition upon which the theory of this disease is founded, he admits, and reckons it an important element, but insisted that there is always an exciting cause for the disturbance, and upon this cause will depend the physical appearance of the parts; and that we know full well the diseases which cause these physical changes in the parts, and these diseases occurring in the dysæsthetic patient, instead of causing pain, produce itching until the irritation and scratching of the parts produce pain.

Among the causes enumerated, he mentioned oxyuris vermicularis, colitis, sigmoiditis, catarrhal diseases of the rectum and uricæmia.

These pathological conditions are the ones which he has found most often in obstinate and obscure cases. To the scientific physician all treatment must be based upon his conception of the pathology of the case; remove the pathological cause, treat the disease and not the symptom. Nitrogenous diet, alkaline diuretics, salicylic compounds and hot baths compose the general routine of treatment. Local applications of carbolic solutions, larkspur, black wash, salicylic acid, chloral hydrate, extract conii, camphor, cocaine, tar, etc., may all be used in one form or another.

Having determined the variety and type of the disease producing pruritus, it is not difficult to manage, and in most cases we may confidently expect a radical cure.

DR. EARLE, of Baltimore, read an interesting paper upon A MODIFICATION OF WHITEHEAD'S OPERATION FOR HEMORRHOIDS.

After reviewing usual methods of operations for removal of hemorrhoids, he described his own method, which consists of clamping the tumors by sections, beginning at an incision in the fourchette where primary incision was made to determine the depth at which to place the clamp. After removing the tissue above the clamp by piecemeal, a continuous suture, beginning at the primary incision, was inserted around the clamp. When the first section has been cut away and sutured, the clamp is removed and the suture drawn taut, and the clamp again put in position until the whole anal circuit has been treated.

He stated that he had given this method a thorough trial, and unhesitatingly said it is the safest, easiest, and by far the best method that he has ever tried. The operation is practically bloodless, and healing by first intention is secured. The convalescence is complete at the end of the week.

Dr. Earle demonstrated his method of operating at St. Anthony's Hospital.

DR. THOMAS CHARLES MARTIN, of Cleveland, discussed, in a very interesting manner, THE ACT OF DEFECATION.

He said that a knowledge of the anatomy of the rectum was necessary to form an appreciation of the physiology of defecation.

The bundles of circular fibers which constitute the muscular element of the rectal valve belong to the same mechanism and have the same function as those which form the ental sphincter.

It is the function of the normal rectal valve to beneficently retard the descent of the feces, and it is obviously true that it may be the especial property of the valve in certain other than normal conditions to maliciously obstruct the descent of the feces.

His experience convinced him that a perfect knowledge of the rectal valve constitutes the key to an understanding of obstipation, rectal stricture and their sequellæ.

DR. A. B. COOKE, Nashville, read an extensive paper on the subject, CONSTIPATION, CONSIDERED FROM THE STANDPOINT OF THE PROCTOLOGIST.

He defined constipation as a diseased condition of the alimentary canal characterized by a modification of function which results in the pathological retention of fecal matter.

He stated among the causes: first, those springing from the violation of hygienic law; second, defective innervation, expressed either in atonicity of the muscular coats of the intestine or in decreased secretion; third, sluggishness of bowel function; fourth, the habitual use of purgative medicines; fifth, mechanical obstruction; sixth, painful affections of the anus.

The relations between constipation and diseases of the rectum are intimate and noteworthy in that either may be cause, effect, or both, with reference to the other.

Rectal reflexes came in for a fair share of consideration. In conclusion he stated as his conviction that in a large proportion of cases constipation either originates in or is maintained by causes located in the distal ten inches of the intestinal tract. If this be true, the notorious inadequacy of ordinary treatment is at once accounted for, and the duty of the proctologist in the premises becomes obvious.

DR. WILLIAM M. BEACH, Pittsburg, presented the subject, RECTAL ADENOMATA.

He defined an adenoma as an hypertrophy of gland texture. He noted briefly the nature of these growths and the value of the proctoscope in their early diagnosis and treatment.

He said there are two principal types of adenomata:—

1. The gelatinous, composed of elements of mucous membrane.
2. The mixed variety, consisting of mucosa and sub-mucous cellular tissue.

The adenoma with a long pedicle is benign, while growths with a broad base tend to malignity.

After discussing symptoms and complications, he said by means of the old methods of examining the rectum it is well nigh impossible to locate these growths of the upper rectum; that the newer proctology substitutes exact methods in diagnosis and treatment of non-malignant adenomata that are most gratifying to both the patient and surgeon.

In conclusion he said that the rectal adenoma may be hard or soft, and contains the constituent elements of the mucosa and sub-mucosa.

Second, That these growths are benign and malignant.

Third, That, benign in their origin, they may become malignant.

Fourth, That early recognition is of first importance, which is made possible by the newer methods of inspection.

DR. J. R. PENNINGTON, of Chicago, discussed the POST-OPERATIVE TREATMENT OF HEMORRHOIDS.

He stated that the success of a rectal operation depends quite as much upon the after-treatment as upon the operation itself. He uses a tampon made by taking a piece of  $\frac{5}{8}$ -inch rubber tubing, about  $4\frac{1}{2}$  inches long, and wrapping it with sterilized gauze until as large as desired, then covers this tent with a special rubber covering. Before introducing this tampon he blows nosophen powder over the field of operation. It is introduced through a bivalve speculum.

Among the advantages claimed for the rubber covered tampon over the gauze dressings, are:

1. It is neater.
2. Its removal is painless, as the granulations cannot and do not penetrate or adhere to the rubber coverings as they do to the gauze or wool dressings.

3. The tender granulation sprouts are not broken off during its removal; hence there is little or no hemorrhage, which leaves the wound better fortified against septic infection, and the healing process is greatly enhanced.

4. There is practically no pain during defecation, a point which seems to us, who have seen patients suffer almost unto syncope during the first movement of the bowels, after the removal of gauze dressings, of very great importance.

The following papers were read by title:—

Surgical Treatment of Non-Malignant Strictures of the Rectum, Joseph B. Bacon, Chicago.

The Proctoscope as a Factor in the Diagnosis and Treatment of Simple Ulceration of the Rectum, Leon Straus, St. Louis.

A Consideration of the Various Forms of Ulceration of the Rectum, Lewis H. Adler, Jr., Philadelphia.

Rectal Carcinoma—Excision and Subsequent Colotomy, B. Merrill Ricketts, Cincinnati.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### DIPHTHERIA—WITH SOME NOTES ON THE MODERN SERUM-THERAPY.\*

W. F. MATSON, M.D.

ALL writers on this subject in the regular practice of medicine agree that diphtheria is an acute, specific, infectious, contagious disease with certain pathological changes in throat and mucous membranes that adjoin, and grave sequellæ.

Condie in 1853 on diseases of children says, "Diphtheria is derived from certain endemic or epidemic occurrences of the disease, and instead of proving its propagation from one or more foci, merely shows that a number of individuals have been exposed to the same local or general morbid cause; and while many were affected by it simultaneously, in some it produced the disease at an earlier, in others at a later, period. That the disease has occurred sporadically, affecting only one member of a family or a single individual of a community, is admitted by nearly all writers; but that it has ever been communicated from the sick to the well we have not the slightest evidence."

Contemporary with Condie we have, Broussais contending it was only a gastro-enteritis with a secondary throat lesion; and Naumann supposing it to result from blood disorder and the pseudo-membrane to be albumen, that the blood will no longer hold in suspension. Bretonneau and Guersent, however, strike nearer by denominating it to be of specific origin; which, Condie says, "amounts to little more than a confession of their own ignorance

\*Read before the Illinois State Medical Society, May 16-18, 1899.

of its true character." Bretonneau names it diphtheritis, and this we continue to use, in all the schools and creeds.

I go back in medical history to 1850 for the reason that about this time there seems to have been a recognition of specific influences at work, while as yet, and for some years later, the organism and manner of gaining entrance was not understood.

George B. Wood, in 1849, speaking of the angina as occurring in scarlatina, says: "The question of both being due to the same ætiological factor, is not without some plausibility."

Klebs, in 1883, reported an organism resembling a bacillus that at times under staining process was club-shaped. It was the year following that Loeffler advanced the idea, that this was the true organism of diphtheria, and obtained a pure culture of it. In 1887, Loeffler again reported a great many cases in which this organism was constantly present, and he had produced throat trouble on animals from these cases.

Roux, in 1888, finished the researches, so far as the organism was concerned, and to many of us there is no doubt existing as to its presence and action, in diphtheria.

I shall not weary you with the ætiology, nor speak of the pathology to any great extent, but will touch somewhat on symptomatology and treatment; the latter from experience of cases under my own observation.

Statistics on the serum treatment of diphtheria could be tabulated from physicians in Illinois alone, to make it appear in comparison with other diseases and treatment, that Hygeia had released it from further surveillance, and surely the most radical opponent will admit that it does not occupy the position it formerly held, in virulence and mortality. Statistics are prosy and instruct an assembly but little, so later I may touch but lightly on them as proof. I am well aware that the majority of this assembly are with me in what I am reading; yet, I cover some ground in my subject hoping to interest one or more who are still undecided or, failing in this, to uphold some weaker members, that they may go back to work from here stronger, and better enabled to use the serum-therapy as applied to diphtheria, boldly and fearlessly.

We all have the differential points, so that between tonsillitis and diphtheria there seems but little to add, yet, I would mention a few that may be of aid to the diagnostician. In acute tonsillitis

you see the patient in a few hours after first complaint of sickness. You find him with flushed face, eyes bright and glittering, and complaining bitterly; every one about him seems to think he is very ill; thermometer, anything from one hundred and three to one hundred and five. Pulse is full, bounding, rhythmical, high tension, rate about 120 or more, and he wants to remain in bed.

Our diphtheria patient is an entirely different picture; he is usually not in bed; parents will tell you, "His throat has been sore for several days yet he is not very sick." We discover a pallid face, eyes dull; he does not complain much except that he is tired and does not want to play. Temperature  $100^{\circ}$  to  $102^{\circ}$  F., pulse is small, full, low tension, almost invariably arrhythmical, rate about 120, vital powers depressed and bordering on collapse. The appearance and consistency of the membrane on throat has much to aid the diagnostician, but only when seen early, for I can assure you a spray of peroxide of hydrogen and mercuric chloride will produce a beautiful membrane, and may be colored with Tr. Ferri Chloridi, to any desired shade.

I ask your indulgence while I read a few cases coming under my own observation, in which the earlier ones were not given anti-toxine through fear of criticism of the community, as very few had heard of it, and none had ever seen it used; yet, evil report had condemned it, and any one who used it.

CASE I.—M. J.; male; æt. 30; laborer. Was at work steadily until weakness and general malaise compelled him to call at my office. He said his throat had been sore for several days, yet could not see why it used him up so completely, as he had sore throat many times before. Temperature  $100^{\circ}$  F., pulse small and about 110 to 115. Examination of throat revealed a tenacious, yellowish-white pseudo-membrane covering pillars of pharynx, both tonsils, uvula and part of post-pharyngeal wall. \* There had been no cases of diphtheria for some months, but this man had been to a neighboring city. Diagnosis was made of diphtheria and patient put on a mixture containing muriated tinct. of iron, potassium chlorate and glycerine. He was directed in addition to swab throat every three hours alternating with spray of bi-chloride 1-1000 and perox. of hydrogen equal parts, to be followed with gargle of lime-water. Liberal doses of quinine completed the treatment, with strychnia later. Membrane lasted over two



weeks and disappeared very slowly. I will say he gave me lots of trouble to establish quarantine, as he would not remain in bed.

CASE II.—D. M.; female; æt. 12. Continued in school until I was called; she presented the usual diphtheritic symptoms as in case last cited; throat more nearly filled than other case, covering both tonsils and uvula. Provisional diagnosis was made of diphtheria afterward sustained by microscope and demonstration of the Klebs-Loeffler bacillus, and quarantine established. She got precisely same treatment as the case above with modification as to dose; membrane lasted three weeks, patient making a satisfactory though tedious recovery. She was troubled for some time with amaurosis which was relieved under strychnia, quinine and iron, with outdoor exercise.

CASE III.—H. E.; female; æt. 30; teacher. Was taken sick in school Friday. I was called next morning, finding a well marked case of diphtheria. Used same treatment as in former cases with the addition of vapor from burning tar. During the next twenty-four hours used eight ounces of brandy to support the heart, as adynamia was marked. Following morning the cyanosis was still more marked, patient could breathe comfortably only when mouth was over the kettle with burning tar, inhaling through mouth. Examination showed the membrane to have multiplied until throat was almost full. I tried mopping it with lactic acid to dissolve membrane, even using slight force to tear away particles with only the result of causing severe hemorrhage. Family and patient being very intelligent people, I suggested anti-toxine, to which they readily agreed. I went to my office for anti-toxine that was given me by Prof. Walter L. Bierring, Bacteriologist of State University of Iowa. The class, of which I was a member, had followed Prof. Bierring through the giving of the initial dose of toxine to the horse; the tapping of the jugular vein and drawing off the blood and after clot forming to decant the serum and transfer to sterile, glass stoppered bottles, so I know full well no carbolic acid was present, nor any other foreign material except, possibly, a stray blood corpuscle. This I emphasize to show how nonsensical the cry of horses' blood and carbolic acid to those who know of its manner of preparation. On this patient I used 1000 units contained in about 15 c.c. of anti-toxine. In three hours patient was more comfortable; 20 hours after administration she expectorated the first large piece of membrane, and

during the following 24 hours the only discomfort was the separation of such large pieces of membrane that she was unable to sleep lest some would be inhaled and suffocate her. In 36 hours after administration throat was clear excepting a very light film that formed on site of ejected membrane; this also disappeared quickly as I now was using only the spray of perox-hydrogen and bi-chloride. The adynamia continued some weeks but it was finally overcome.

CASE IV.—O. J.; male; æt. 13; school boy. Found case of angina with pseudo-membrane covering one tonsil, pillar, one-half the uvula and constitutional symptoms of diphtheria. Membrane continued to spread during next 24 hours, with an increase in constitutional symptoms. 1000 units of P. D. & Co. serum was administered; improvement began in 12 hours, and in two days the throat was clean. In this case, after administration of anti-toxine, he had an eruption on skin, resembling miliaria, disappearing in a few days, without treatment; recovery in all uneventful.

CASE V.—M. C.; female; æt. 10. Similar history as above given, with history of contagion. From family of Case IV, the mother of this girl had borrowed magazines contrary to all instructions and strict quarantine; cases in this family all originated in this manner. This child was given 600 units anti-toxine, P. D. & Co., at end of 24 hours; spray to clean throat, and a good bracing tonic, completed the treatment. 36 hours later membrane was entirely separated; little or no adynamia shown during entire course of trouble. In 3 days she was up; recovery uneventful.

CASE VI.—B. C.; female; æt. 2. Sister of Case V. This little Miss, having a will of her own and using it often, led to her mother's remark that she would die if she contracted diphtheria. Began in her with violent symptoms about noon; voice hoarse, wheezy, and crying from pain and general disturbance. By night she seemed so badly off that I was called, and gave her 400 units P. D. & Co. anti-toxine. She fought and struggled so during examination and administration that family would not, nor did I think it best under the circumstances, to disturb her, except to carefully watch her that night. Next morning she was coughing loosely and swallowing the membrane; and allow me to state this was all the treatment she received, except nutritious food; her recovery throughout was uneventful.

CASE VII.—G. C.; female; æt. 8. Sister of Cases V. and VI. Being liable at any time now to show symptoms of diphtheria, it was deemed best to administer an immunizing dose which was done; 400 units being given. She continued well; no angina developing, nor any untoward effects from the anti-toxine.

CASE VIII.—Mrs. H. C.; æt. 30. Mother of Cases V., VI. and VII. After my visits ceased she was taken ill. She did not call me for 36 hours; in meantime using spray, and other medicines used for Case No. V., thinking as she had done the nursing, all would be well, and to avoid quarantine extension of time, by keeping the matter quiet. Symptoms of depression came on so rapidly, that growing alarmed, she called assistance. 1,000 units were used, and recovery was prompt and uneventful. She was kept on strychnia for several weeks for the resulting adynamia.

CASE IX.—B. J.; male; æt. 15. Brother of Case No. IV. This case presents a typical acute tonsillitis six weeks after quarantine was raised for his brother. I found temperature 105.2° F., flushed face, patient very restless and complaining; pulse 130, full and bounding, throat clean but greatly swollen, both tonsils and fauces having a dark wine-color; no malaise but marked anorexia. I prescribed divided doses of calomel, with acetanilid and gelsemium, and tr. chloride of iron, dram 1 to ounces 1 of glycerine, directing him to swab the throat every four hours, alternating with dram doses of the same four hours apart. Next morning I called and found him much improved; pulse 100; soft, compressible. Temperature 100.5° F., skin moist and anorexia entirely gone. I discharged patient after leaving treatment; throat still remaining clear with very small amount of swelling. Five days after discharge I was told the patient, while still confined to his room, was up, eating well, and reading most of the time, seemingly convalescing rapidly. A few days after this in passing house I was called in; found him rather pale; said he was tired, and stopped gaining strength, as he expressed it. I found on examination of throat a small area, not larger than the end of a lead pencil, on left tonsil, which was little, if any, enlarged. Questioning still further, I found that books and magazines his brother had amused himself with, during an attack of diphtheria, had been brought out for this boy, and promptly decided I had a case of diphtheria, as was afterwards proven. The beginning and course seemed so mild that I decided to call in counsel a friendly

physician who also believed in the use of anti-toxine, and try to bring this case through without serum treatment. We studied all indications together, meeting some, and forestalling others, trying to give him up-to-date treatment, combined with generous liquid diet, with stimulants as needed. Despite seeming mildness of case and thinness of the membrane (area never was, beyond median line, of uvula), it still continued a slow, spread-over oral and faucial surface of soft palate, and toward post-pharyngeal wall. At the end of fifteen days the patient was greatly emaciated; cervical lymphatics greatly enlarged and painful; pulse small, thready and weak. We now found membrane beginning to thicken and spread rapidly; paralysis of pharyngeal muscles to the degree that deglutition was accompanied with great difficulty; almost complete left hemiplegia; urine scanty, high colored, and loaded with albumen and triple phosphates. Adynamia was so marked he could not raise his head from pillow; visual accommodation lost; phonation so indistinct only nurse could understand. I confess now of doing wrong, and would hardly dare it again, as, in our opinion, he would be dead in 48 hours, unless some change was made. That evening we administered the serum 1,000 units; next morning he was no worse, nor was he any improved; we gave him 500 more units. The following morning we were pleased to hear he was no weaker and membrane was sloughing off; during the time after using the serum, he was put on an exclusive milk diet. Improvement from now prompt; but slow convalescence, due to emaciation and toxæmia, was met with strychnia, iron and general tonics. One scarcely ever sees toxæmia so profound, characterized as it was by adenitis, albuminuria and paralysis; for days he continued with difficult phonation, ataxic gait and loss of visual accommodation. In all cases, except that made at Iowa City, Ia., Parke, Davis & Co. serum was used.

After summarizing facts as presented, and deducting therefrom anything that might be chargeable to prejudice of the writer, we can but draw the conclusion:

1st. That with our present knowledge of life habits and role of Klebs-Loeffler bacillus, and pathology of diphtheria, the use of serum-therapy is not empiricism, but is eminently prophylactic in immunization; decidedly correct as to therapy, in conserving the patient's vital powers, and lessening the time when heart, kidneys, and other organs are liable to a lesion.

2nd. That early administration renders further treatment, except ordinary cleanliness, unnecessary; unless, very virulent in type, necessitating a second inoculation. The earlier the diagnosis is made, the better the results expected; almost all adverse reports, coming from delayed use, and timidity in dosage. One should calculate adult dose at 1,000 units, and make deductions therefrom as to age, weight and general build of patient, and virulence with toxæmic developments and the possibility of a repetition of dose; one is inclined to use greater than the maximum dose in a forlorn hope.

3rd. That immunization is a fact, not a theory, as the vast number of reports continuing to swell statistics testify for it. Baginsky, of Berlin, places limit at three weeks, and that seems to be agreed upon. Dr. Jenner finally came out triumphant in the inoculation for variola, yet today a class of very small people are continuing to cry out against it. It is an interesting fact that the *tortula cerevisiæ*, acting on saccharine substances will, when the alcohol produced reaches about 18 per cent, be rendered powerless to convert it still further, and they die in their own secretions. May not the serum modified, and in the circulation, reach site of membrane and so cause its sloughing away or shedding, be in much the same manner? It would seem so, for membrane is cleared from tonsillar to pharyngeal surface; yet some bacilli, who by virtue of greater virulence may not succumb to initial dose, but remain, form secondary membrane.

4th. That the dangers attending administration are over-estimated by many. It does not produce a nephritis in diphtheria, as one of the diagnostic points is albuminuria. We can, however, by limiting disease, lessen period of irritation, blood pressure and moderate febrile curve; this surely will minimize many sequellæ. I know of no proven case of septicæmia from its use; yet, we all can recall cases where septicæmia was present, with all its formidable array of indications to be met, where the serum was not used at all. The horse blood and carbolic acid story is untenable, as it is the serum only that is used. P., D. & Co. and H. K. Mulford do not use carbolic acid to preserve it. We are all instructed at first show of cloudiness, to return bulbs, they to replace them at their own expense. I would ask pardon to digress from text to say: while we have Parke, Davis & Co. and H. K. Mulford & Co. manufacturing a superior quality of serum,

why need we patronize the "Behring serum"? His course has been decidedly unethical and profits by other peoples' work, and wishes, further, to draw to himself the sole manufacture in this country; we are compelled to be his agents and bear the burden and pay expenses. I would caution the profession against being too sanguine, however, in all serums; noting, with pleasure, the grand results from anti-streptococcic serum in one of our greatest dreads, namely, puerperal septicæmia. Yet, one of these same little people who scoff at modern ideas will go from diphtheria, measles, and even erysipelas, and confine an innocent and unsuspecting woman, and when death ensues, does not remove the mote from his eye, but will blandly talk of cold and milk fever. The public, as a rule, learn rapidly; too rapid for many of us, and they will demand what we prove to be right and proper treatment, if we only persevere in using patience and kindness.

Monticello, Ill.

## "THE THERAPEUTICS OF WHOOPING-COUGH."\*

F. J. TAYLOR, M.D.

THERE is a South German proverb which says "that whooping-cough lasts till it stops," meaning by this, that treatment has but little effect on its course. It is to be hoped, however, that they are right, who at the present day deny the truth of this saying.

There is no specific treatment for whooping-cough, since the cause of the disease is unknown. Nevertheless, many useful things may be done to increase the prospects of recovery.

The prime object of treatment is to lessen the frequency and severity of the fits of coughing, and to assuage the irritability of the upper air-passages.

As the disease is limited in duration, it is manifest that if the strength of the patient can be maintained and accidents can be avoided he will recover.

The various modes of treatment of whooping-cough may be classified as follows:

### 1. Prophylactic.

\*Read before the Maine Medical Association, June 7, 1899.

## 2. Hygienic.

## 3. Medical.

I. Prophylactic: Because of the danger and great infectiousness of whooping-cough, every effort should be made to guard children from the disease. Isolation and disinfection are as important and powerful in suppressing the contagion of whooping-cough as that of any other disease of the class. It is a disease which is not usually recognized, and for which the physician is not called, till a week or more has elapsed, during which time the other members of the household, and probably of the school, are exposed to infection. Hence, isolation is rarely practiced, and mothers among certain classes even adopt the pernicious practice of allowing their children to be exposed, on the ground that they must have whooping-cough sometime, and the sooner they have it and are over it, the better. This idea should be combated wherever found; for, the older a child is, the better able is he to resist the debilitating effects of the disease; while in infants the danger of a fatal result is considerable.

Because of the fact that most cases are improved by being taken into the open air, the disease is continually met with, not only in public places but in public vehicles. The infection is usually transmitted by the breath and secretions; yet it is possible for the disease to be carried by a third person from the sick to the well by means of handkerchiefs or clothing. It is impossible to determine exactly how long infectiousness continues, but ordinarily it ceases entirely at the end of two months after the onset of the disease. Several observers have made the statement that vaccination greatly modifies the course of whooping-cough. In some of the cases coincidence may have had much to do with the apparent action of the vaccine infection. In others it is readily possible that one disease may have modified the course of the other. Deeper investigation upon this subject is required. It is possible that at some future day inoculation with the attenuated virus of whooping-cough will be practiced.

After death or recovery, rooms and their contents should always be disinfected, although it is not probable that the poison survives long outside the body.

## II. Hygienic treatment is of the greatest importance.

If we accept the germ theory of the disease we shall understand the usefulness of ventilation, not only as supplying fresh

oxygen to the patient, but in destroying the germs in the expired air of the room, and possibly to a slight extent in the air-passages of the patient. The living-room of the little patient should have the air of an even temperature, preferably about 68° F. It should be free from draughts and yet well ventilated. The chief peril to life lies in the probability of pulmonary inflammations; but experience has abundantly demonstrated that the confinement of children in even well-ventilated apartments has a distinct tendency to aggravate the symptoms, so that very great judgment is often required in obtaining out-door air without exposure. In summer the children should be out in the open air the whole day, when the weather is fine; in winter out-door exercise should be confined to dry still days in which the temperature is not too low. Winds are even more dangerous than dampness. In some cases the best results are to be obtained by the use of large apartments with very free ventilation. Great stress should be placed on the fact that the child with whooping-cough *should be fed often*. A paroxysm of coughing is very likely to end in vomiting; and if the child has recently taken his nourishment, the stomach is emptied and the patient must suffer in consequence. In such cases he should take a little easily digested food after each act of emesis. If the patient will take them, four to six eggs a day are not too much for a child of four years, in addition to four to six ounces of meat juice, with perhaps other foods. If only a small part of this is absorbed, it will quite effectually prevent any loss of weight or any great loss of strength; but it will *never* do in a severe case to rely on the usual three meals a day; there would better be a dozen meal-times a day than three. The fact that one of the dangers in this disease is that tuberculosis may follow, makes it important that the child's nourishment should be kept high. Warm flannel undergarments should be worn, and especial care should be taken that the patient does not become chilled at night by tossing off the bed-clothing. In advanced whooping cough the greatest benefit is sometimes obtained by change of air. Excitement and over-exercise should always be avoided as they are liable to bring on a paroxysm of coughing. Keeping the patient up to his most perfect standard of vigor, lessens the number and force of the paroxysms. It is far better to restrict ourselves to these simple hygienic methods, than to resort to any form of treatment which reduces the strength of the patient: for reduction of



strength renders the patient less able to resist the debilitating effects of the disease, and makes him more liable to dangerous complications.

III. The medical treatment is naturally divided (a) into that which is directed against the nervous elements of the disease, (b) that which has to do with the catarrhal condition, (c) and lastly that which is directed towards the general support of the system. The mildest cases require only careful supervision or are easily relieved to a very satisfactory extent by medication. In the severe cases, on the other hand, the condition is far different. Here we must be ready to employ one plan of treatment after another until something of benefit is found; for there is no disease of which it is truer, that the treatment which has acted like a charm in one case or series of cases, may fail utterly in another. Then, too, we must not fail to employ our remedies in sufficiently large doses before decrying them as useless.

(a) To lessen the nervous irritability seems a prime desideratum, and almost every drug having any reputation for this purpose has been used at one time or another. One thing is clear—namely, that no anodyne drug should be used, except under the stress of some emergency, if it disturbs the digestion or interferes with the nutritive functions or the powers of life. If an anodyne must be used, *codeine* is considered one of the safest. The testimony of many investigators shows that *antipyrine* is one of the drugs upon which most reliance can be placed. Children take it in proportionately larger doses than adults. Beginning with a small dose, it should be increased until a child of two years is taking two or three grains every three hours. In afebrile state it is never depressant unless some idiosyncrasy exists. In many cases its action is little short of marvelous, but in the majority all we can expect is a decided lessening of the number and severity of the paroxysms. *Belladonna* has been used for years, and is of undoubted service in many instances. It has the advantage of being safe in doses sufficient to produce its constitutional effects, and should be continued throughout the sickness. *Bromoform* has proved of value in the hands of many observers. It may be given in doses of from two to four drops three or four times a day to a child three to six years of age. My own results have not been as favorable with this drug as with *Antipyrine*.

*Bromide of Potassium, Sodium or Ammonium* are considered

very serviceable, and may advantageously be combined with anti-pyrine or belladonna. *Chloral* is another drug which is frequently of value, especially for procuring sleep; but we must always bear in mind that it is a cardiac depressant and govern ourselves accordingly. Osler says: "*Quinine* is one of the best remedies. One-sixth of a grain may be given three times a day for each month of age."

(b) *Woods & Fitz*, in their new book, say "that the frequency of the paroxysms and the catarrhal irritation of the mucous membrane may be sensibly modified by the administration of the *emulsion of asafoetida* in very large doses at short intervals."

I never have been able to accomplish much with the preparation, because of its offensive taste and smell. Little treatment is usually required during the catarrhal period. *Alum* has long been a favorite; it is especially useful to check excessive secretion in the later stages, or where the presence of mucus seems to excite the paroxysms. Two grains may be given every three or four hours at two years of age.

If the cough and catarrh are excessive, a weak mixture of codeine and tartar emetic may be used very cautiously; one-half grain codeine, one grain of tartar emetic to a goblet of water, a teaspoonful being given every hour or two hours according to the severity of the cough and distress. A child will rarely object to this and the dose is perfectly safe. Sometimes syrup of ipecac and squills may be advantageously added to the above prescription. Local treatments of the throat, larynx, trachea, and nasal passages have been used extensively, but in my own practice I have found this form of medication difficult to carry out with small children, as they are generally frightened by it. The use of atomizers and inhalations of vapors are available and valuable. At the West End Nursery Infants' Hospital, Boston, they use a "Vapo-Cresoline" lamp, which is kept lighted in the room of the patient. The lamp burns a coal tar derivative and is said to work most excellently.

Dr. Harrington, who has lectured on Therapeutics for several years in the Medical Department of Harvard, says: "I taught for years that there was no specific which would check or stop the paroxysms of whooping-cough, but am now convinced there are remedies which act almost as a specific." He has made certain observations to this end, and is confident that Formaldehyde fumes

will almost completely stop the vomiting and paroxysms. He uses the Paraform tablets, which are largely Formaldehyde. One tablet is powerful enough when evaporated to disinfect 35 cubic feet of air. He uses three or four tablets for an ordinary room. He simply permeates the air of the room, not completely disinfecting it; for in the latter case it becomes an irritant and will do more harm than good. He places two or three tablets of Paraform in one-half drachm of Alcohol and lets it evaporate over a gentle heat. In this disease, as in others, the bowels should not be allowed to become constipated, and laxatives may be needed; the best for children being calomel or castor oil.

(c) During convalescence the system should be built up as much as possible by the use of Iron, Arsenic, Strychnia and Cod Liver Oil, with nutritious food, good, pure air and change of scene.

To summarize:

1. Isolation and disinfection.
2. Pure air and warm clothing.
3. Keep the patient up to his most perfect standard of vigor by frequent feeding.

4. Palliate by use of Antipyrene, Belladonna and Bromides internally with inhalation of Formaldehyde vapor to relieve paroxysms and nervous irritability. Codeine, Tartar, Emetic, Ipecac and Squills for catarrhal condition, and Iron, Arsenic and Strychnine to tone up and strengthen in convalescence.

Pittsfield, Me.

## TREATMENT OF ACUTE GASTRO-ENTERITIS—A SYMPOSIUM.

[EDITORIAL NOTE.—The suggestions which follow have been taken from the latest editions of the authorities quoted, which have been reviewed in our pages during the last two years. Careful effort has been made to bring out differences of opinion, while agreements have been noted only when slight essential variations were evident.—R. W. H.]

## 1. HYGIENIC.

L. Emmett Holt, in his *Diseases of Infancy and Childhood*, says: "Fresh air is of the utmost importance for all diarrhoeal cases in the summer. No matter how much fever or prostration there may be, these cases always do better if kept out-of-doors the greater part of the day. Nothing is so depressing as close, stifling apartments. Children should be kept quiet, and especially should not be allowed to walk, even if they are old enough and strong enough to do so. They can be kept out in carriages, in perambulators, or in hammocks.

The clothing should be very light flannel; a single loose garment is preferable. . . . At the seashore and in the mountains, special care should be taken that sufficient clothing at night is supplied.

Bathing is useful to allay restlessness, as well as for cleanliness and the reduction of temperature. For the first purpose a sponge bath of alcohol and water or vinegar and water, is sufficient. For the reduction of temperature, only the tub bath is to be relied on. If the temperature continues above 102° F., systematic bathing should be employed. The temperature of the bath should be about 100° F. when the child is put into it, and should then be gradually reduced to 80° or 85° F. by adding ice. The bath should be continued for from ten to thirty minutes, according to the requirements of the case. Thus used it has generally a very quieting effect, which is entirely lost by the terror and excitement caused by putting a young child suddenly into a cold bath.

Scrupulous cleanliness should be secured in the child's person and clothing. Napkins, as soon as soiled, should be removed

from the child and from the room, and placed in a disinfectant solution. Excoriations of the buttocks and genitals are to be prevented by scrupulous cleanliness and the free use of some absorbent powder, such as starch and boric acid."

Taylor and Wells, in *Diseases of Children*, add: "When the surface temperature is high, that is, above 103° F.,—an ice cap may be placed on the child's head, or the fever may be reduced by frequently sponging the body with tepid water, followed by friction. No antipyretic drugs should be given, as they do more harm than good."

Jacobi, in his *Therapeutics of Infancy and Childhood*, says: "In acute cases of intestinal (or gastro-intestinal) catarrh with high temperature, applications of water, of from 60° to 70° F., to the abdomen will render good service. The cloth must be wrung out thoroughly, covered with rubber cloth and flannel and changed when warm.

In hot weather doors and windows should be kept open, the coolest place selected in the house or neighborhood, day or night; for night air is preferable to no, or foul, air; and the sea air or country air, particularly at some altitude, is superior to city air. When in hot weather the body feels hot, it should be washed with cool or cold water, or water and alcohol (5 to 1) frequently."

Dawson Williams, in his *Medical Diseases of Infancy and Childhood*, advocates for the reduction of temperature when it remains high "with flushed face and distended abdomen, or if symptoms of collapse threaten, especially if small mucous stools are passed, the use of large clysters. In an infant nine to twelve months old about a pint should be injected slowly, preferably by means of an irrigator. As a rule the clyster is retained for half an hour to two or three hours, and is then evacuated along with the infective contents of the large intestine.

In addition to thus removing poisonous matter, these injections may have considerable effect on the temperature. Thus a pint at 85° F. may produce a very rapid fall from 103° or 104° F. to below normal, and at 92° F. may cause a fall of several degrees. Such injections must therefore be given with caution, and their effect watched."

Thompson, in his *Guide to the Clinical Examination and Treatment of Sick Children*, says: "It is important, when this disease is prevalent, not to allow any child to be weaned unnecessarily,

the number of breast-fed babies affected being very small compared to those on the bottle.

Cleanliness in the milk supply, and especially sterilization of the milk used for the baby, and keeping it cool before use, are also very important. It is not only important to observe the greatest cleanliness in connection with the milk, but the nurse should disinfect her hands each time after touching the diapers or anything soiled by the motions."

Vaughn, in the American Text-book of Diseases of Children, says: "When the temperature is above 103° F. an ice cap on the head is desirable, and in some instances it seems to favorably affect the vomiting. When the temperature goes up to 104° F. or higher, some more efficient means of reducing it must be resorted to. The use of the coal-tar derivatives for this purpose is not to be considered, and the same may be said of all drugs. Frequent sponging and friction with cloths wet with cold water may be sufficient. The friction is important on account of the coldness of the surface. When the temperature is more alarming, the child should be placed in warm water, and the temperature of this gradually lowered by the addition of ice to 85° F., the child being rubbed all the while it is in the bath. It should not be kept in the bath more than ten minutes after the temperature has been lowered to the above mentioned point. Bathing the extremities in hot mustard-water and the use of friction are beneficial in the state of collapse."

Osler, in his Practice of Medicine, says: "Hygienic management is of the first importance. The effect of a change from the hot, stifling atmosphere of a town to the mountains or the sea is often seen at once in a reduction in the number of stools and a rapid improvement in the physical condition. Even in cities much may be done by sending the child into the parks, or for daily excursions on the water. However extreme the condition, fresh air is indicated. The child should not be too thickly clad. Many mothers, even in the warm weather, clothe their children too heavily. Bathing is of value in infantile diarrhoea, and when the fever rises above 102.5° F. the child should be placed in a warm bath, the temperature of which may be gradually reduced, or the child is kept in the bath for twenty minutes, by which time the water is sufficiently cooled. Much relief is obtained by the application of ice-cold cloths or of the ice cap to the head."

Tyson, in his *Practice of Medicine*, says: "The hyperpyrexia must be combatted by hydrotherapy, the bath at 80° F. rapidly reduced to 70° F. or if this cannot be done the child should be wrapped in sheets wrung out in cold water. Sponging is a feeble substitute; hyperpyrexia is one of the dangers."

Hare, in his *Practical Therapeutics*, says: "A very important never-to-be-forgotten measure in cholera infantum is the use of counter irritation over the belly by means of a mustard plaster (1 part mustard flour to 4 of wheat flour) or by a spice plaster. The plaster should be renewed as often as it cools, and kept on continuously if the skin will stand it."

Cheadle, in his *Diseases Which Arise from Faults in Diet in Early Life*, says: "To set up gastro-enteritis in its severest and most fatal form, I believe something more than mere indigestibility of food is required. The most potent cause is souring and decomposition of the food, and this usually results from neglect of scrupulous cleanliness in utensils in which food is kept, or keeping it too long before using, especially in hot weather, or in foul air; near a drain or sink, for instance, or in an ill-ventilated room. Milk is a constant source of danger in this way; it readily takes up dangerous organic poisons, and soon undergoes change."

Ashby, in *Health in the Nursery*, says: "The greatest care must be taken in changing the napkins as soon as soiled, and a pad of absorbent cotton-wool or 'Gamgee tissue' should be used as a napkin, or placed inside the ordinary napkin, and at once burnt when soiled. It is well to remember that stools from infants with diarrhoea are infective, and they must be dealt with accordingly."

#### DIETETIC.

VAUGHN, *loc. cit.*—"The first thing to be done is to positively forbid the further administration of the poison. *Not a drop of milk should be given.* This is a *sine qua non* in the treatment. The prohibition of milk must be absolute. Sterilized milk should not be thought of, and even the breast of the mother or wet nurse must be denied. Prepared baby foods should be thrown out the window.

\* \* \* With the exception of stimulants the child should have no food for twenty-four hours or even longer. Then meat broths, given a teaspoonful at a time, and to be discontinued if

they provoke vomiting, are most likely to be borne. The absolute prohibition of milk should hold good for several days."

HOLT, *loc. cit.*—"It is of the first importance to remember that during the early stages of the acute cases, digestion is practically arrested. To give food at this time, manifestly can only do harm.

"In nursing infants, the breast must be withheld so long as a disposition to vomit continues, and no food whatever given for at least twelve hours. Thirst may be allayed by giving frequently, but in small quantities, cold whey, barley or albumin water. Stimulants may be added to these if required. If they are refused or vomited, absolute rest to the stomach will do more than anything else to hasten recovery. After the stomach has been quiet for twenty-four hours, it is generally safe to allow the child to be put to the breast tentatively. The intervals of nursing should not be shorter than four hours and the amount allowed at one feeding should not be more than one-fourth the usual quantity. This may be regulated by allowing an infant to nurse at first only two or three minutes. Between the nursings may be alternated, whey, barley water or albumin' water, so that something is given every two hours. Nursing may be gradually increased, so that in three or four days the breast may be taken exclusively. \* \* \*

"In infants under four months who are being artificially fed, if the attack be a severe one and occur in summer, a wet nurse should be secured whenever this is possible. If this is out of the question, we have to face one of the most difficult problems in artificial feeding. Cow's milk must always be withheld during the stage of acute symptoms and for several days longer. \* \* \*

No food whatever must be given upon a very irritable stomach; but thirst must always be relieved by bland fluids given frequently in small quantities, and cold. Articles requiring the least digestion and having the smallest residue should next be tried.

\* \* \* It is a common mistake to give too much at a time, to feed too frequently, to try too many articles at once, and to change before a thing has been fairly tested. For a single feeding the quantity will vary according to the tolerance of the stomach, but it should always be much less than is given in health, usually one-fourth to one-half that amount. It is very rarely, if ever, necessary to nurse or feed a sick child oftener than every two hours. \* \* \* We must have many resources, for a food



which one child takes well, the next disdains utterly. The best plan is to select from a list of articles of accepted value, such as circumstances will permit, and such as are most likely to be properly prepared, and try them patiently, one after another, until one is found which the child under treatment will take, and one which agrees with him. \* \* \* Both the mother and the nurse must be impressed by the fact that the diet is an important part of the treatment, and that foods must be given just as carefully as drugs. In the management of any single case the important thing is prompt and thorough evacuation of the stomach and bowels, then rest for these organs for from twelve to twenty-four hours, or as someone has tersely put it, 'bold starvation'; but it is necessary in all cases that water be given freely. No cases do worse than those in which the mother or nurse in charge can not be made to appreciate the value of starvation, but insists upon giving food, especially milk, in violation of the rules laid down."

TAYLOR AND WELLS, *loc. cit.*—"All milk should be stopped, nor should any food containing it be given to the child. \* \* \* Sterilization or pasteurization of milk does not render it a proper food in this disease. The child should receive no food at all for from eight to twelve hours—indeed, in some instances as long as twenty-four hours—after the beginning of the attack. During this time small quantities of about half an ounce of cold sterilized water should be given at regular intervals, and in order to aid in stimulating the patient, brandy or whiskey may be added to the water. \* \* \* After the vomiting has become less frequent, the child may be given small quantities of nourishment in the form of panopeptone, beef peptonoids, freshly prepared beef juice, scraped beef or albumin water. Starch water, arrowroot, and food containing starch, advised by some as a preliminary diet after cholera infantum, have not met with very much success in the author's hands. Our preference is for albumin water, some form of thin beef extract or light broths."

JACOBI, *loc. cit.*—"When milk is again tried after a while, it ought to be done very carefully; cow's milk thoroughly boiled, or sterilized with six times its volume of barley-water at first, the percentage of milk to be increased slowly. I repeat: cow's milk, ever so often boiled or sterilized, is still cow's milk. Milk may be replaced by the white of egg, which should be thoroughly mixed with barley-water, and some salt added, and not more

(cane-) sugar than is required to make the mixture palatable. During the course of a day and night the whites of from one to five eggs may be given according to the case and age. \* \* \*

After total abstinence, mucilaginous or farinaceous decoctions may be given in small doses at short intervals. A mixture which has rendered me very valuable services in the worst cases of vomiting and diarrhœa, after the period of total abstinence was terminated, is about as follows: Five ounces of barley-water, the white of one egg, from one to two teaspoonfuls of brandy or whiskey, some salt and cane-sugar; a teaspoonful every five, ten or twenty minutes according to circumstances. Mutton broth may be added to the above mixture, or it may be given by itself, with the white of egg and some little salt. \* \* \* The ubiquitous beef-tea ought to be avoided; its concentration of salts is irritating. If, in convalescence it be given at all, it should be mixed largely with barley-water or rice-water."

WILLIAMS, *loc. cit.*—"In the treatment of a case of acute gastro-enteritis in an infant fed by hand, milk should be stopped, and the patient should be allowed to drink freely of water (boiled), cold or hot, to which some Vichy water may be added. As food, whey, weak veal broth, or egg-water may be given in small quantities at frequent intervals; or, except in the youngest infants, barley, wheat or oatmeal water, which, when properly made, has the advantage of containing very little fermentable material."

THOMPSON, *loc. cit.*—"Milk, even if it does not contain the poison which is causing the disease, is the best culture-medium for the micro-organisms which are producing it in the child's body, and is therefore very dangerous."

UPSHUR, in the Supplement of Keating's Cyclopædia of Diseases of Children, says: "The plan of treatment suggested by Luton of Rheims, and Remey of Nancy, has been very favorably received. The plan is, briefly, to withhold all food for several hours in the beginning of an attack; the duration of this abstinence is to be determined by the strength of the child and the intensity of the disease. It is necessary to restore blood pressure, to restore to the blood the liquid which it has lost, to allay thirst, and to cleanse the gastro-intestinal tract of all retained poisonous matters. This is accomplished by the exhibition of a feebly alkalinized and sparkling water. Para suggests Vals or Soultzmatt. These waters are to be given in small doses, at first frequently and

persistently, until thirst is no longer complained of. During a few hours a child should have received from one-half to one litre. At first some of it will be rejected, but if we persist in our efforts, large quantities will be retained. The subsequent treatment of the case consists in the cautious return to milk-feeding."

OSLER, *loc. cit.*—"From his observations Escherich lays down the following rules, recognizing two well defined forms of intestinal fermentation—the acid and the alkaline. If there is much decomposition, with foul, offensive stools, the albuminous articles should be withheld from the diet, and the carbohydrates given, such as dextrin foods, sugar and milk, which, on account of its sugar, ranks with the carbohydrates. If there is acid fermentation, with sour but not fetid stools, an albuminous diet is given, such as broths and egg albumin. It is, however, by no means certain whether the reaction of the stools, upon which this author relies, is a sufficient test of the nature of the intestinal fermentation. In the dyspeptic diarrhoea of artificially fed infants, it is best, as a rule, to withhold milk and feed the child, for the time at least, on egg albumin, broths and beef juices. \* \* \* \* There is no form of nourishment so readily assimilated and apt to cause so little disturbance as egg-albumin or the simple beef juices. \* \* \* Milk-whey and forms of fermented milk are sometimes useful and may be employed where the stomach is very irritable."

ASHBY, *loc. cit.*—"One of the following mixtures may be given: Arrow-root water, two ounces; Whey, two ounces; White sugar, half a teaspoonful; or, Barley water, ten ounces; White of egg, half an ounce; White sugar, a teaspoonful. \* \* \* A dried milk food is preferable to fresh milk."

CHEADLE, *loc. cit.*—"Do not commit the common fatal mistake of putting the child on mere barley water, or arrow-root and gelatine, or veal broth, except for a short time at first. This may agree, but it is starvation diet; the danger is of death by exhaustion and collapse. Give food that will stay on the child's stomach but let it be nutritious and stimulating also, and given in small quantities at a time. \* \* \* In my experience the most successful plan of all, is to place the child on bread-jelly food, to which a small quantity of peptonized milk has been added; or weak peptonized milk alone may be used. The food should be given frequently in small quantity, one or two teaspoonfuls

only every hour or half-hour. If the sickness abates, half a teaspoonful of Brand's Essence, or a teaspoonful of a solution of Valentine's meat juice diluted with twenty parts of water, may be given every two hours. \* \* \*

When the sickness has completely ceased for at least twenty-four hours, more nutritious food may be cautiously ventured upon, such as raw meat juice and cream, added in small quantities to bread jelly or highly dextrinized artificial food."

Sidney Ringer quoted in Potter's *Materia Medica, Pharmacy and Therapeutics*: "Farinaceous food is a common cause; diet, cow's milk twelve ounces, with milk sugar one ounce and boiling water twelve ounces, or cold milk with lime water."

Baltholow. quoted in same place: "diet, milk, animal broths; no starches or fats."

Marfan, in *Traité de L'Allaitement et de L'Alimentation des Enfants du Premier Age*, says: "In some acute gastro-enteritis of nurselings, it is necessary from the very first to stop all feeding and to give only pure water. If we continue to make them take milk or any other food, vomiting persists, diarrhœa increases, and the general condition grows worse and worse. \* \* \* The water diet has for its chief effect the checking of gastro-intestinal putrefaction. But this is not its only advantage: it allows the stomach and intestines to rest; it relieves thirst, often very quickly; it prevents the dehydration of the tissues, always very marked; it maintains diuresis, which is so necessary for the elimination of the toxines.

"It is evidently necessary to give sterilized water; in practice, boiling a few minutes furnishes water sufficiently pure.

"The infant may take it about as often as he wishes. We may offer him, according to the case, fifty grams every half hour, one hundred grams every hour, or one hundred and fifty grams every hour and a half or two hours.

"At first I forbid the addition to the water of any substance whatever. After some hours and only when the infant does not willingly take pure water, I allow the addition of a little sugar. Every other addition appears to me useless. Especially refrain from albumin water; by its easy putrefaction, it may readily aggravate the conditions.

"In every case of severe acute gastro-enteritis, the water diet must continue at least twenty-four hours. After this time the

child must be examined to see if he can be fed lightly and carefully. If vomiting has stopped, diarrhoea is almost checked, countenance looks better, temperature is nearly normal, he may be allowed every four hours either to nurse a little or to have twenty grams of sterilized milk in forty grams of sugar water, and in the intervals continue to give the boiled water. But if these changes have not taken place in twenty-four hours, it is necessary to continue the water regime for twelve or twenty-four hours yet. There is no harm in keeping the child on boiled water for forty-eight hours."

#### MECHANICAL.

TAYLOR AND WELLS, *loc. cit.*—"To aid nature in freeing the system of the poison which is already in it, washing out the stomach and intestines gives excellent results. These irrigations must be repeated frequently. The water must be sterilized and may be used plain, or, what is probably better, should be medicated by the use of calomel and bismuth, or any of the salts of the latter, particularly the subnitrate and the subgallate or a one per cent solution of sodium chloride."

Paul Lefert, in his *Lexique-formulaire des Nouveautés Médicales*, says: "Because of the dangers of intoxication by intestinal absorption, it is necessary to employ only faintly poisonous antiseptics: Of boric acid, forty grams may be used in a litre of boiled water, or borax ten grams, of chloral two grams, and of naphthol twenty centigrams.

"We may combine naphthol and boric acid: twenty centigrams of naphthol, thirty grams of boric acid in a litre of boiled water. In giving these irrigations it is necessary to use a soft rubber catheter which is introduced clear up into the transverse colon and the fluid is introduced under low pressure from an irrigating bag, slightly elevated."

HOLT, *loc. cit.*—"To empty the stomach is not necessary in every case, since the initial vomiting may have done this efficiently. Whenever vomiting persists, immediate resort should be had to stomach-washing. A single washing is generally sufficient, and if employed at the outset may do much to shorten the attack. If there is high fever and great thirst, it is often advisable to leave an ounce or two of water in the stomach. If the vomited matters have been very sour, ten grams of bicarbonate of soda may be introduced with the portion which is to be left behind. To older

children emetics may be given, but to infants never. As a substitute for stomach-washing in children over two years old, or where it cannot be employed, copious draughts of boiled water may be given. This is taken readily, and as it is usually vomited almost at once, it may cleanse the stomach thoroughly; but it is inferior to stomach-washing. \* \* \* Irrigation of the colon is advisable in all cases, as it hastens the effect of cathartic and removes at once much irritating and offensive material. It should be done two or three times the first day, but afterward once daily is sufficient. A saline solution (one ounce to the gallon), at a temperature of about 80° F., is to be preferred; and a long rectal tube should be used."

VAUGHN, *loc. cit.*—"Wash out the stomach and intestines on the first appearance of the symptoms. Do not postpone these measures in the hope that resort to them may not be necessary. \* \* \* Acute milk infection is poisoning with a substance more powerful and deadly than white arsenic. The washing of the stomach and intestines will not exhaust the little patient half so much as the continued vomiting and purging, and the artificial means are much more effective. The bowels should be thoroughly irrigated with warm water and castile soap, not less than a gallon of water being used. After the large intestine has been cleansed in this manner, an injection of cool water, containing fifteen to thirty grains of Tannic acid to the pint should immediately follow. Some of the poisons are proteids which are precipitated by Tannic acid, but until the great mass of proteid in the large intestine has been removed, no good can be expected from this agent. The object of the Tannic acid irrigation is to render inert any soluble poisonous proteids which may remain in the intestines after the first washing.

"The stomach should be washed with warm water containing a teaspoonful of common salt to the pint."

JACOBI, *loc. cit.*—"Most cases of gastro-enteritis are preëminently enteritis; therefore the claim that the washing out of the stomach must not only take place in every case, but is the almost infallible remedy in the very worst class of cases, will have no other result but that of discrediting that useful procedure in the eyes of all those who are inclined to believe implicitly in the value of 'new' methods and the pretentious claim of short-sighted enthusiasts."

WILLIAMS, *loc. cit.*—"Where vomiting is an early and prominent symptom, the attack may sometimes be cut short by washing out the stomach with boiled water, at 98° F., to which Resorcin (1 in 1000) or Boric Acid (one half per cent) may be added. Before withdrawing the tube, one ounce of Castor Oil may be introduced into the stomach. If vomiting recurs, the washing may be repeated, and, in an infant of nine months, two drops of Tincture of Opium or two or three drops of solution of Cocaine (5 per cent) left in the stomach."

UPSHUR, *loc. cit.*—"The stomach and bowels should be washed out to remove every particle of undigested food, warm water being used. This plan of treatment needs no defence at the present day; its worth is fully appreciated. If the fæces contain much mucus, borax is to be added to the water, and if astringents are indicated, the first one is a one to two per cent solution of Tannic Acid. If the toxæmic state develops, large quantities of saturated Boric Acid solutions are to be used (from two to four litres) once or twice a day. Blech advises the addition of hydrozone, in the proportion of a tablespoonful to the pint of water, for a stomach wash; for the intestinal irrigation the proportion is two ounces to the quart of water."

OSLER, *loc. cit.*—"Irrigation of the stomach may seem a harsh procedure in the case of young infants, but in reality, with a large-sized, soft-rubber catheter, it is practiced without any difficulty. By means of a funnel, luke-warm water is allowed to pass in and out till it comes away quite clear. I can speak in the very warmest manner of the good results obtained by this simple procedure in cases of the most obstinate gastro-intestinal catarrh in children. In most cases the warm water is sufficient. In some hands this method has probably been carried to excess, but that does not detract from its great value in suitable cases. \* \* \* Irrigation of the large bowel is useful, and not only removes fermenting substances, but cleanses the mucosa. The child should be placed on the back with the hips elevated. A flexible catheter is passed for from six to eight inches, and from a pint to two pints of water allowed to flow in from a fountain syringe. A pint will thoroughly irrigate the colon of a child of six months, and a quart that of a child of two years. In cases of entero-colitis there may be injections with borax, a drachm to the pint, or dilute Nitrate of Silver, which may be given either in large injections, as in the

adult, or in injections of three or four ounces with three grains of Nitrate of Silver to the ounce. These often cause very great pain, and it is well in such cases to follow the silver injection with irrigations of salt solution, a drachm to the pint."

## MEDICINAL.

JACOBI, *loc. cit.*—"The intestine may be emptied either by purgatives or enemata. \* \* \* Castor oil, so common in domestic practice, deserves all the credit given to it. It acts mildly and speedily. The addition of Opium is not wise; the latter may be administered after the former has exhibited its effect; the action of the oil must not be inhibited by the sedative. In many cases a single dose of calomel (one-half grain to six) answers better, being both a purgative and anti-fermentative.

"The surplus acids of the stomach—mostly lactic, acetic and butyric—must be neutralized. Magnesium and Sodium salts must not be selected for that purpose, for they add to the diarrhoea. Calcium salts, the carbonate or phosphate, are preferable because they have no such effect, but the additional advantage of forming with the fat acid an insoluble salt which acts to protect the sore surface. Doses of about one or two grains may be given every hour or two. Besides being an anti-fermentative in general, Bismuth (the subnitrate or carbonate) binds sulphide of hydrogen, and thus has a favorable effect in frequent doses of from a quarter of a grain to two grains. They may be administered with or without the addition of Opium. If they be given in liquid forms, no syrups should be added to correct the taste, but rather glycerine, which has the advantage of not turning sour.

"To combat the existing fermentation, anti-fermentatives may be given at regular intervals. Calomel, Bismuth, Alcohol, Creosote, Salicylate of Sodium, Salol, Naphtholin, Resorcin, Bichloride of Mercury, and others have been largely eulogized. \* \* \* I feel positive that Resorcin in doses of from one-quarter to one-half of a grain in solution, or as a constituent of a powder containing Bismuth, Chalk, or (and) Opium, given every two hours, has rendered me the most valuable services in a great many cases. Of the two mercurials, I prefer Calomel by far, in doses of from a twentieth to a quarter of a grain every few hours. \* \* \* Salicylate of Sodium is less effective than any of the rest. Creosote acts more vigorously in the stomach than in the bowels; Salol



is readily taken; Naphtholin is objectionable to many, because of its taste and odor."

HARE, *loc. cit.*—"At times the diapers have a peculiar, mousey odor, and are characteristic; that is, they seem to be only wet and odoriferous, and contain no solid matter. If closely examined, they will be seen to be soiled by a small amount of whitish substance, looking like a paste made of water and fine chalk. Such a passage bodes ill for the child unless treatment is instituted. The physician should order, *at once*, 1-20 grain of Podophyllin for a child of six months, to be taken in two doses, half an hour apart, in twenty drops of Brandy and a little water. Two hours after this the dose should be repeated, and again in two hours more if necessary. By the end of the fourth hour there will generally be seen in the movements of the bowels a trace of color, and this will gradually become more marked if the case is to have a favorable termination.

"As soon as the movements have changed from the pasty-white motions named to those having a bilious color, then, and not till then, are astringents to be employed.

"The rationale of the treatment rests upon the fact that owing to the disease every gland connected with the alimentary canal has become inactive. It is absolutely necessary to bring about glandular activity, and Podophyllin, in the experience of the author, is the best remedy for this purpose. During the period that the Podophyllin is acting, it is well to apply a spice plaster to the belly or to immerse the child for short intervals in a hot bath to preserve its bodily temperature."

POTTER, *loc. cit.*—"Opium is generally necessary. Peptenzyme is excellent in cholera infantum and the summer diarrhoea of children."

Brunton, in *Lectures on the Action of Medicine*, says: "Besides Chalk, Bismuth and Opium, we may have to employ various astringents. \* \* \* The vegetable astringents contain Tannin in various forms, more especially Rhatany, Krameria, Kino, Catechu and Logwood. These are used in the forms of infusion, decoction, tincture or extract."

HOLT, *loc. cit.*—"Other drugs than Calomel and Castor Oil are of secondary importance. Their value is certainly very much overestimated. \* \* \* Experience has shown that certain drugs which have been classed as antiseptics are valuable, but as

yet we must use them empirically. Those in my experience which have been found most useful are Bismuth, Calomel, Salol and Salicylate of Soda. \* \* \* My own experience accords with that of most recent writers in attributing to astringents little or no value. They often do positive harm, by disturbing the stomach and interfering with digestion. \* \* \* Nothing requires nicer discrimination than the use of Opium in diarrhœa. It is wise to administer it always in a separate prescription and never in composite diarrhœal mixtures. \* \* \* Stimulants are required in the majority of the severe cases. \* \* \* Old Brandy is the best preparation for general use, Champagne possibly being preferred for older children, when the stomach is very irritable. \* \* \* If they are not retained when given by mouth, they may be used hypodermically. \* \* \* To neutralize the effect of the poison upon the heart and nervous system, nothing in my hands has proved so useful as the hypodermic use of Morphine and Atropine. \* \* \* The effects of the dose should always be carefully watched; a small dose repeated is better than a single large dose. For a child a year old, not more than 1-100 grain of Morphine and 1-800 grain of Atropine should be the initial dose. It may be repeated every hour until the desired effects are produced; these are, arrest of the vomiting and purging (or at least their diminution), improvement in the heart's action and in the nervous system. Here, as in shock, we find Morphine our most reliable heart stimulant."

VAUGHN, *loc. cit.*—"I prefer Whiskey to all other alcoholic stimulants. Brandy, if pure, would be equally good, perhaps better, but unadulterated Brandy is a rare article in this country, while good Whiskey is easily obtainable. \* \* \* There is scarcely a drug which has been shown to have, or supposed to have, germicidal properties that has not been used in this disease. Much harm and no good can be obtained from them. To attempt to disinfect the alimentary canal by means of these agents is a waste of time and energy."

TAYLOR AND WELLS, *loc. cit.*—"When the system has suffered a great loss of water, as in fact it always does in this disease, and a considerable degree of collapse makes its appearance, subcutaneous injections of salt solution are indicated, as advised by Rotch and others. \* \* \* Small and frequently repeated doses of calomel (1-40 to 1-30 of a grain given every fifteen minutes until

two or three grains have been administered) have, in the author's hands, given fully as good results as any other drug used in the treatment of this disease."

THOMPSON, *loc. cit.*—"Antiseptics are sometimes useful, but their value has been greatly exaggerated. \* \* \* Dilute Hydrochloric Acid (1 to 3 minims) well diluted every two hours is also very useful. \* \* \* Astringents are of no use."

CHEADLE, *loc. cit.*—"The great drugs are Bismuth, in full doses, to soothe the mucous tract by local application; Opium (with caution), to lessen peristalsis and reflex irritation; Ipecac, to ease the inflamed membrane by aiding secretion; or grey and Dover's powder in frequent doses, for similar purposes."

TYSON, *loc. cit.*—"Laudanum or Deodorized Tincture of Opium in doses of two to four drops in a couple of drachms of starch water, may be given by rectum."

## BOOK REVIEWS.

THE NEWER REMEDIES. By VIRGIL COBLENTZ, A.M., Phar. M. Third edition, revised and very much enlarged. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia, 1899. Price \$1.00.

This is a little book which every physician wants. We are constantly being reminded of new remedies and desire to know authoritatively, their value, composition, effects, dose, etc. The articles are presented in concise alphabetical order, with accurate cross references. The author is professor of chemistry and physics in the New York College of Pharmacy.

BABY. By FRANCES SHELTON BOLTON. Published by the Mothers' Journal Company, New Haven, Conn. 1898. Price, 50 cents.

The author, as editor of the *Mother's Journal*, has gathered together in this book much of what she has published in years past, making a complete whole by such additions or omissions as were necessary. As physicians we recommend the book as we do the journal to our mother patients. Much sensible advice is given to the inexperienced mother in regard to the baby whose every need is discussed and whose development is carefully studied.

## PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, May 9th, 1899.

THE PRESIDENT, DR. EDWIN E. GRAHAM, IN THE CHAIR.

DR. D. L. EDSALL exhibited a CHILD WITH A LARGE ABDOMINAL TUMOR, THOUGHT TO BE A SARCOMA OF THE KIDNEY. The history was entirely negative up to two weeks before the child was seen. Then the mother noticed that the abdomen was prominent and hard on the right side. She knew nothing more than this. The child was pale, rather weakly, and very irritable, but seemed to have no pain. The abdomen was prominent on the right, especially in the upper half. The prominence was found to be due to a large mass of rounded surface somewhat more prominent in parts, but in general smooth. This moved freely upon respiration and was readily movable from side to side. The general form of the tumor corresponded quite closely to that of the kidney. It extended far back into the flank, but could be pressed well forward. The urine contained a small number of red blood corpuscles, but nothing else abnormal. The count of the leucocytes showed about 18,000 to the c.m.m. The differential count showed nothing of importance. Operation had been advised.

DR. J. P. CROZER GRIFFITH exhibited a case of CONGENITAL HEART DISEASE, in which he had made the diagnosis of pulmonary stenosis, patent ductus arteriosus and perforate septum ventriculorum. He followed out the steps by which the diagnosis was reached, and urged the importance of effort in all cases to come to a closer diagnosis than that of "congenital heart disease" merely.

## DISCUSSION.

DR. TYSON.—The murmur is certainly in the pulmonary area. It is a very harsh murmur and resembles that of pulmonary stenosis. On the other hand there is also a sharp accentuation of the pulmonary second sound which implies some excess of pressure in the pulmonary artery.

With regard to the route of the blood through the perforated

ventriculus septum, the question naturally arises, why should the blood pass from the right to the left rather than from the left to the right? The answer is that since the exit of blood from the right ventricle is obstructed by the stenosed pulmonary artery it passes through the patulous ventricular wall preferably from right to left because of least resistance in this direction to the left side of the heart. This surcharges while the blood sent through the aorta orifice passes from the aorta through the patulous ductus arteriosus into the pulmonary artery, again surcharging it and causing the sharp pulmonary accentuation. It does appear to me from a superficial examination that there is some evidence of enlargement of the left auricle. There is more dullness on that side than ordinarily there is in that situation. The reasoning by which Dr. Griffith arrives to his conclusion seems legitimate.

DR. A. A. ESHNER.—I had opportunity to listen but casually, so that, of course, an expression of opinion from observations made here as compared with those that have been made in the wards under more favorable conditions would have little weight. Listening, however, as I did, the murmur seemed to possess the peculiarities that I have learned to consider as characteristic of obstruction between the auricles and ventricles associated with insufficiency; that is, it begins immediately after an accentuated second sound, and with a peculiar vibratile thrill or rumble it continues until the subsequent second sound. I did not percuss the chest, but Dr. Tyson's suggestion of enlarged left auricle would strengthen the supposition of mitral obstruction. This would not, of course, explain the cyanosis, but there is no reason why with congenital mitral obstruction there might not be congenital deficiency of the septum.

DR. TYSON.—This very thought suggested by Dr. Eshner also passed through my own mind as to whether or not the condition might not be mitral stenosis. The characters of the murmur do coincide with those of mitral stenosis and it does sometimes happen that that murmur is heard in that situation, while the signs of hypertrophy of the left auricle sustain the same view.

DR. GRIFFITH.—In reply to the remarks of Dr. Eshner, mitral stenosis is an extremely uncommon condition in congenital heart disease. If present it should give a diastolic murmur and I have at no time heard such a murmur in this case. I have not listened

this evening and cannot give an opinion regarding the present moment. But if it were present it is probable that the right side of the heart would show a decided enlargement. This would certainly be the case if the mitral stenosis were a post-natal affection. This child has practically no enlargement of the right side discoverable. In any case we still have the systolic murmur to explain.

One of my reasons for exhibiting this child was that a few years ago I reported before one of our local societies a case of perforate septum ventriculorum, in which the diagnosis was made during life and confirmed post mortem. The criticism was made by one speaker that a diagnosis in congenital heart disease was generally impossible, and never more than accidentally reached. While admitting the difficulty and often impossibility which attends, I believe that this case illustrates the way in which a diagnosis can sometimes be made with very great probability.

DR. ALFRED HAND exhibited a case presenting AN UNUSUAL FORM OF PARALYSIS.

He said: The case is that of a child three years of age. It is the sixth child of seven. The fifth child of the family was born at seven months, dead. This child was born at seven months, and the seventh child, born last September, was also a seven-months child, and lived only five hours. The father, the mother and the other children of the family are perfectly well. Aside from being a seven-months child this one seemed to be normal until the end of the first year; then the parents noticed a gradual loss of power in the left arm and leg, which have become spastic. This loss of power was very slight at first, but has gone on to the present condition. She never had any of the diseases of childhood, but each summer has had febrile diarrhoea. She is perfectly intelligent; can tell her name and can make attempts at motion. She can move the left hand but slightly. She can move the right foot with difficulty, but it throws the whole muscular system into activity.

There does not seem to be any difference of measurements of the muscles. The muscles of the left side appear a little smaller than those of the right; this, however, could easily be explained by the lack of use. The knee jerks are present; not exaggerated, though I think a little more marked than is usual in children of three.

If the paralysis had come on suddenly I should have thought of cerebral apoplexy, but it came on slowly. This might be due to a thrombosis, the cause of which I would not venture to state. Why there is a paralysis to a certain extent of the right leg also, and why that should be involved in a cerebral thrombosis, is not clear. The right hand moves, but there is a little spastic element and the muscle-tone is not as good as it should be. The left arm has been in a state of constant spasticity at each examination, but the mother says that it sometimes hangs perfectly loose. The child cannot walk; there seems to be no voluntary power in the muscles. In getting around she can roll over to the left side, but cannot throw the left side over the right. If the intellect were deficient I should think of a general gliosis, but with the cortex apparently uninvolved, it is puzzling to me what the condition is.

## DISCUSSION.

DR. ESHNER.—It seems to me that there might have been a subdural hemorrhage at birth. The fact that the symptoms were not observed at this time would have comparatively little significance because they would not appear until the child was able to exercise a certain amount of voluntary control over its muscles. As Dr. Griffith has said, there are distinct athetoid movements, which seem to be in the nature of associated movements. The reflexes are exaggerated and there are other indications of heightened muscular tonicity. The child, further, seems to have a tendency to cross its legs in the manner characteristic of cases of diplegia. It is interesting that the patient was born at seven months, as one or more of the other children also were. This may mean the existence of some maternal pelvic deformity, in consequence of which, perhaps, hemorrhage beneath the dura was superinduced in the present case.

DR. A. O. J. KELLY.—I am greatly impressed with the truth of Dr. Griffith's statement that, in certain obscure cases, the subject comes to necropsy, we cannot be assured of the correctness of a clinical diagnosis. The present case I am rather inclined to view as one of the forms of cerebral diplegia, but in view of the fact that the aunt states that the child's arm is at times entirely flaccid, and since when the child attempts to execute a voluntary movement, there is coincident contraction of both the

flexors and extensors, as well as for other reasons, I think we might not altogether exclude an hysterical element from the case.

DR. GRIFFITH.—The child is certainly exhibiting some athetoid movements. The case appears to be undoubtedly one of some cerebral lesion, the nature of which does not seem clear.

DR. HAND.—With regard to Dr. Kelly's suggestion in thinking over the case, I bore hysteria in mind as a last resort, but it seems to me that the clonic movements would exclude a simple functional disturbance. I believe that there is some organic change, and I thought of a cortical hemorrhage. All the cases I have seen with that lesion have had paralysis with a greater spastic element, but I admit that certainly some cerebral disturbance does seem to be the most rational explanation, though absence of spastic element speaks against this.

DR. D. L. EDSALL reported a case of CONGENITAL PYLORIC STENOSIS.

DR. JAMES TYSON reported a case of GENERALIZED VACCINIA.

#### DISCUSSION.

DR. WELCH.—I have been much interested in Dr. Tyson's description of the case of vaccinia with a generalized eruption, and am pleased to have had the opportunity of examining the photographs, but I must say the lesions do not seem to me to be altogether typical of true vaccinia. I understood Dr. Tyson to say that the vaccination was done on the leg and that the large lesion seen in the photographs is the site of introduction of the virus. I would call attention to the fact that this original lesion appears to have reached maturity and undergone desiccation while the generalized eruption was still vesicular. Now, this is not in accordance with Bryce's test. He has shown that when vaccination is repeated in an individual on the second, third, and perhaps on the fourth days, all of the vesicles mature at the same time. I hardly know what to think of this case. I never saw one like it. I have seen in rare cases a vesicle appear on the cheek or some other part of the body after vaccination on the arm, and have regarded it as the result of autoinfection. Jenner taught that a generalized vesicular eruption is not seen in true vaccinia.

DR. GRIFFITH.—I had the opportunity of seeing this child with Dr. Tyson, and had the photographs taken which he has exhibited. As I understand Dr. Tyson, this case does not show a pure-



ly consecutive secondary lesion of the nature which Dr. Welch describes. I understand that the general lesions came out very shortly after the original inoculation lesion, and that they and it all matured at the same time. The photographs certainly show this appearance.

DR. SEABROOKE.—This reminds me of a case I saw some years ago. A boy of seventeen had been vaccinated with lymph from the farm at Marietta, and a week after the vaccination vesicles appeared all over his body and became almost like hemorrhagic small-pox. The marks were very persistent, remaining for a year. This boy's brother showed similar marks after an attack of chicken-pox.

DR. TYSON.—The majority of the lesions are on the side on which the vaccination was done. They are on both arms, but more are on the left than on the right.

I think in a general way Dr. Welch's observations were true of this case; the pustules appeared in successive groups and they all terminated at nearly the same time. The simple fact that this condition has been observed in a number of cases shows conclusively, it seems to me, that there is some relation between the vaccination and the lesion. Had I not vaccinated this child with lymph I should have been greatly alarmed.

DR. L. M. ALLEN reported a case of ERYSIPELAS IN AN INFANT: AND A CASE OF MELÆNA.

#### DISCUSSION.

DR. JOFSON.—I saw the first case mentioned in Dr. Allen's report, that of the infant with erysipelas, and I had previously operated on the mother for a cellulitis of the arm which had some of the appearances of a streptococcus infection. There was a spreading phlegmonous inflammation extending beneath the flexor muscles of the forearm for a considerable distance, and requiring free incisions for drainage. The wounds in the mother's arm were not quite healed at the time when the child developed erysipelas, and the inoculation of the child may have occurred directly, as we now know that the streptococcus pyogenes is in all probability identical with that causing erysipelas. The occurrence of scarlet fever in another child in the family simultaneously is interesting, because of the frequently repeated observations that cultures from cases of scarlet fever often show the presence of

streptococci, and these have been designated as the cause of the disease by some observers, although the question of their significance is still an open one.

DR. RAVENEL.—It is true that the identity of the streptococcus found in erysipelas with the streptococcus pyogenes is generally acknowledged at the present day, though there is not a great deal of direct evidence in the matter. I recall one case at the Presbyterian Hospital where a child was operated upon for empyema and the pus contained only the streptococcus. While enlarging the incision, in clipping through the rib a small sliver of bone flew off and struck the house surgeon in the face. Within a few days he developed a severe case of erysipelas commencing in the wound and evidently resulting from the inoculation. The case was reported by Dr. Arnold in the University Medical Magazine. I have seen two similar cases reported in European journals, the reference to which I am unable to give, but even with these, cases clearly proving the identity of the streptococcus pyogenes with the streptococcus of erysipelas are rare, and this case is well worthy of record.

As Dr. Jopson has said, the organism which causes scarlet fever is as yet undetermined. The streptococcus has probably been found more often than any other single organism, and the occurrence of these three cases in the one family, and their sequence, indicates the possibility that they all had the same origin, especially if other sources of infection can be excluded.

DR. ALLEN.—It is only fair to say that there was scarlet fever in the same street a few doors above; that the woman who had the trouble with her arm some weeks before the child was taken sick, had been repeatedly exposed. The question is, whether the susceptible condition of the uterus at that time allowed the germ that started up the inflammation of the arm to gain access in that way. The woman gave no history of injury of the arm. The fact that the condition came on soon after labor led me to think that possibly a septic embolus had lodged there.

DR. EMERY MARVEL reported a case of Noma.

DR. WELCH.—I would like to show to the society a very good photograph of a case of noma following measles which was treated in the Municipal Hospital. It began on the lip. It was very early cauterized with nitric acid, but you will see that the de-

structive action spread beyond that site, and at the time of death of the child involved a large part of the lower lip and the cheek.

I also show you a photograph of another case of noma following measles, not my own, but one which occurred in the practice of Dr. Shamberg. You will notice how extensive was the necrotic action. The case, of course, terminated in death.

## BOOK REVIEWS.

*Ueber die Behandlung der Kinderkrankheiten.* By DR. H. NEUMANN. Published by Oscar Coblentz. Berlin, 1899.

The volume presents in comprehensive form the views of our German medical brethren as understood by Professor Neumann in regard to the treatment of children's diseases. To physicians who would have a more complete knowledge of this important branch of therapeutics than that furnished in English the volume will be found serviceable. Beginning as such books usually do with general considerations, the diseases and their symptoms are taken up in order and each fully considered. The scientific precision of the German is shown by the careful classification of diseases which differ somewhat from that in American books, and is correspondingly interesting and instructive.

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*Traité de l'Allaitement et de l'Alimentation des Enfants du Premier Age.* By DR. A.-B. MARFAN. With 22 illustrations. Published by G. Steinheil, 2, Rue Casimir-Delavigne, Paris, France, 1899.

This is a very complete treatise on a most important subject. We hear a great deal in these days about artificial feeding, but comparatively little attention is given to the normal process of suckling the infant. It is here that this volume seems to fill a place in medicine. For besides all the questions of milk, both human and prepared according to "modified schedules" and the digestion of the same by the infant in health and disease, we have a careful discussion of such problems as the physical frame and development of the mother, special care which she should take of herself and her breasts, her food and hygiene, together with the various abnormal incidents which may arise. The language and style is simple and easily read by every one even fairly conversant with French.

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## ORIGINAL COMMUNICATIONS

### COLLOID CARCINOMA OF THE OVARY.\*

CHARLES GREENE CUMSTON, M.D.

THE term colloid carcinoma has been given to a type of cancer containing a large amount of colloid substance; it has been found in the pylorus, the stomach, intestines, peritoneum, mammary gland, the liver, the kidney and ovary, although the two latter organs are less frequently the seat of this pathological process.

The name of alveolar carcinoma has also been given to this type of neoplasm on account of its macroscopical appearance, but the old surgeons employed this term in every case to growths which presented a more or less gelatinous consistency, and it has only been in recent years that this type of tumor has been considered a carcinoma, which has arrived at the highest state of colloid metamorphosis.

The cause of colloid degeneration is probably to be explained from the fact that in every carcinoma which has attained a certain degree of development, a retrogressive metamorphosis takes place. For example, carcinoma of the mammary gland has a marked tendency to undergo fatty degeneration, while cancer

\*Presented by invitation of the Section of Gynecology of the American Medical Association, Columbus, Ohio, June 6-9, 1899.

arising in mucous membranes, covered with a cylindrical epithelium, will undergo a mucous metamorphosis.

That colloid carcinoma is more prone to arise in the stomach, intestines or peritoneum, is due simply to the physiological properties of the cell elements from which the neoplasm originates. Although Rindfleisch does not deny that a primary colloid metamorphosis can take place, he is, nevertheless, of the opinion that the principal part of the colloid change takes place in the beginning, at the boundary line of the connective tissue and epithelium.

According to this authority, if one examines the very characteristic picture of colloid carcinoma, and then if it be observed how the groups of carcinoma cells lying in alveoli were in the first place adherent to the walls of these alveoli, from which they are gradually separated by the formation of strata of colloid substance, without being either increased or decreased, and how, at length, they atrophy and disappear after numerous strata of colloid material have become deposited,—all this can only point to the fact that the greater amount of colloid substance is secreted at the boundary line of connective tissue and epithelium, although the fully developed epithelial cells are in no manner involved in the process.

A direct transudation from the blood can, of course, not be admitted, because the endosmotic power of colloid substance is nil. On the other hand, it may be that in these cases the colloid substance is a metamorphosed formative matter of the epithelial cells, like an albuminous body from which other types of carcinoma obtain an increase in the number of their cells.

Arnold's theory must here be considered. As is known, this authority believes that epithelial cells originate from an amorphous matter, and if this theory be correct, the accumulation of colloid substance can be easily explained as a simple collection of this amorphous formative substance. The concentric stratification of the colloid matter met with in these neoplasms, certainly indicates a periodicity in the process of secretion; the fatty and granular detritus, which composes a single layer, must probably be regarded as a secondary product of colloid formation.

An example of this interesting pathologic process not long since was under our care, the history of the case being briefly as follows: Mrs. Francis E., aged forty-nine years; menses began at

the age of thirteen and were always regular every four weeks, the duration being about four days, until about a year ago, when they became irregular, occurring every six or seven weeks. The amount lost at each menstruation since this function had become irregular had been very considerably increased, almost to the extent of a hemorrhage. For three months before coming under observation the patient suffered from a rather constant, dull pain in the pelvis and a burning sensation in the region of the umbilicus. At the age of twenty-seven the patient gave birth to a healthy child at term, and has never been pregnant since. The appetite was poor, the tongue clean, and the bowels fairly regular. Sleep was somewhat disturbed, but the patient did not complain of headache. The inguinal glands on both sides were found enlarged and hard, but they were not tender to pressure; there was no enlargement of the supraclavicular glands. Lungs and heart apparently normal. Analysis of the urine negative.

By examination the abdomen was found somewhat enlarged and a number of dilated subcutaneous veins were visible in its lower half. There was a slight edema of the left leg. By palpation a globular mass was found situated in the left side of the abdomen and extending from the corresponding iliac fossa to within about six centimetres of the umbilicus, while there appeared to be a narrow strip of percussion dullness extending from the mass over the lower part of the abdomen to the right iliac fossa.

The vagina was roomy; bilateral laceration of the cervix. uterus was antverted and apparently pushed forward by the mass. Bimanual palpation revealed a fullness in Douglass cul-de-sac; the which was behind and to the left of the organ. The mass moved with the uterus, but could not be distinctly limited from it.

An exploratory laparotomy being advised and accepted, an incision about five centimetres long was made in the median line. As soon as the peritoneum was opened about 500 cc. of colloid substance escaped from the abdominal cavity. Introducing three fingers into the incision, the following condition of affairs was discovered: The left ovary was the seat of a large colloid carcinoma about the size of an adult head, while the peritoneum of the pelvis was studded with small clusters of secondary nodules extending across to the right iliac fossa, and it was to the latter that was due the dullness on percussion.

As it was more than useless to try to remove the growth, the abdominal incision was closed by several through and through wire sutures. The patient made an uninterrupted recovery, and was discharged in three weeks.

Microscopical examination of the colloid matter, which was discharged through the incision when the peritoneum was opened, showed numerous spindle and polygonal shaped epithelial cells which were imbedded in a colloid stratum.

The patient survived the operation seven weeks, and at her death permission was obtained to open the abdomen. The autopsy revealed a fibrinous peritonitis with secondary foci of colloid carcinoma, the left ovary being the starting point of the malignant process.

The origin of colloid carcinoma of the ovary is obscure, and many authorities are of the opinion that the process develops in a preëxisting ovarian cyst, and Rokitsanski and Frerichs have particularly insisted on the external similarity of colloid carcinoma and certain varieties of cystoma of the ovary. Cruveilhier and Rokitsanski believed that this form of malignant transformation was most prone to arise in parvilocular types of ovarian cystoma, while Frerichs and Virchow do not admit this theory. The former even went so far as to exclude colloid carcinoma from the genus of cancer and placed it in the list of cystic neoplasms having a colloid contents.

According to Waldeyer, it is quite possible to make a sharp distinction between colloid carcinoma and cystoma. An alveolar carcinoma is simply a type of carcinoma which forms a transition to cystoma, thus making, so to speak, a connecting link between the two, and is quite as justifiable, as for example—myxosarcoma, for they cannot be entirely separated from carcinoma or cystoma. This form of transition is not even necessary, inasmuch as a true medullary sarcoma can be found in cystic formations. It is useless to dispute the point whether or not the cystoma belongs strictly to colloid carcinoma, or vice versa.

There are clearly typical types which can only be described as true colloid cancers, and others which we have to admit belong to the class of cystoma; and there are atypic forms which show the most varied conditions of transition. Waldeyer also says that if in its development an epithelial tumor shows a tendency to cystic formation, and if the single cysts coalesce so as to form larger

cavities, and if this occurs throughout the entire neoplasm without in any way affecting the neighboring tissues, the application of the term cystoma is justifiable; while for those tumors where in spite of the colloid changes taking place in their cellular elements and never forming larger cysts, with special walls, with proliferating cell masses, and finally an extension of the tumor into the lymphatics and an invasion of the neighboring tissues, these should be called colloid cancer.

If, on the other hand, the authorities who assert that colloid carcinoma is simply a carcinoma in its highest development are correct, then surely certain points must be considered which would also be in favor of a point of origin of this form of carcinoma in the ovary. Provided that we maintain the theory of an epithelial origin of ovarian cancer, the development of colloid carcinoma in this organ can then be traced back to the epithelial elements contained within it, although there can be no positive proof as to whether ovarian carcinomata are developed from the remains of Pflüger's tubes, or from Graf's follicles, or from the primary epithelial masses.

Rindfleisch is the only modern authority who gives an opinion as to the origin of carcinoma of the ovary. He admits the possibility that it originates from the follicles, or from the sites of the follicles; but, on the other hand, he believes that the endothelium of the lymphatics may undergo cancerous transformation. For the present, at any rate, the genesis of carcinoma of the ovary must be looked upon as still unexplained.

Regarding the character of colloid carcinoma of the ovary, it may be said that it can be either benign or malignant. Birch-Hirschfeld explains the benign character inasmuch as he says that the extensive metamorphosis of the cells hinders the intensity of their proliferative power, and that consequently a slower course and a relatively lesser inclination for metastasis is present; but in this case, we must admit that the carcinomatous cells have undergone a colloid metamorphosis and have lost their vitality, and that when they are carried to other parts of the economy, by either the blood or the lymphatic vessels, they do not form metastasis, and consequently cannot give rise to other foci of new formation.

But there are a good many cases which show that this theory is not correct, at least in every subject, because there is great malignancy which has been shown to exist, proven by the forma-



tion of multiple metastases. For this reason, Foerster contests the benign character of colloid carcinoma, and asserts that alveolar carcinoma of the ovaries always is accompanied by alveolar carcinoma in other organs of the body, and he thus, consequently, denies the possibilities of a primary colloid carcinoma. It has been also observed that colloid carcinoma is found in other organs when it exists in the ovaries; but the secondary foci are not, correctly speaking, a metastasis, but are more properly a direct extension of the growth, and therefore the neoplasm generally remains confined to the organs in its immediate neighborhood. Such an extension would naturally take place more especially along the tubes towards the uterus.

If we now consider the question of the age of patients who are affected with colloid carcinoma of the ovaries, it will be seen that it has little of importance in a certain sense, for it has been shown that carcinoma of the ovaries attacks young people during, or even before, puberty, while in most all other viscera cancer is usually met with at a more advanced age, particularly at about the time of the menopause. Leopold mentions a case of a girl, aged twelve and a half years old, who had a cancer of one ovary weighing four pounds and a half, and Winkel and Olshausen, from their experience, believe that puberty and immediately after it is a very propitious time for the development of carcinomatous transformation in the female genital glands. It must not be understood that colloid cancer of the ovary cannot also arise in older persons, and this is shown by the case here related as well as many other recorded cases, all of whom were women who were at or had passed the menopause. This latter fact as well as the fact that young people are not exempt from colloid cancer of the ovary would allow the conclusion that this affection is independent of the age of the patient.

If we consider the character of the menses in subjects afflicted with this form of carcinoma we will note that there is in the first place an irregularity with long intervals and considerable loss of blood at the time; clots may also be present. This characteristic which is at variance with the general rule, as well as the entire absence of menstruation and other anomalies of this function, would naturally not allow one to make a diagnosis of a malignant tumor of the ovary, and we should never lay too much importance on the menstrual function when making a diagnosis of ovarian

diseases, because Leopold found that in sixty cases of ovarian tumors the menstruation showed quite a varying conduct under similar pathologic conditions, and it has also been well demonstrated by Olshausen that it is only by a complete absence of the menses that we have one of the earliest signs of an ovarian neoplasm.

The commencement of a colloid cancer of the ovary is never indicated by any definite symptoms and must therefore be classed among the so-called latent neoplasms. The first symptoms complained of usually are burning pains in the region of the sacrum and in the abdomen. To this will soon be added a sensation of weight and an unpleasant tension in the abdomen. As soon as the tumor has reached a certain stage its growth then becomes rapid, a circumstance which generally first calls the patient's attention to her trouble and causes her to seek medical advice. These phenomena are not characteristic in every case, for occasionally only moderate pains exist or may be even wanting while the rapidity of growth of the tumor will naturally vary in each case.

An important symptom is the appearance of ascites which can easily be demonstrated by percussion dullness as well as by the change of the dullness when the position of the patient is changed, and in the large majority of cases it is present in a more or less considerable degree. Ascites is usually looked upon as a phenomenon indicating pressure because the vessels of the abdomen and pelvis are compressed by the increasing size of the tumor; it also may be due to a peritonitis, which in its turn, may be produced by the affected ovary as well as to the relation between the latter and the peritoneum covering it. The pains may also be attributed to an irritation of the peritoneum.

Ascites, which is present in malignant ovarian tumors, is not infrequently accompanied by an edema of the lower extremities; this latter symptom may be explained by pressure of the tumor on the pelvic vessels, and Olshausen believes that it is also produced by the compression of the veins by infiltrated lumbar glands.

The presence of metastases in other organs is naturally of considerable diagnostic value, but is characteristic of carcinoma in general. The lymphatic glands are more especially affected, above all those that are in the immediate region of the neoplasm. In carcinoma of the ovary the glands of the inguinal region appear to be very frequently involved, and I may add that as in the case

of malignant tumor of the testicle in the male, the ovary, when the seat of a malignant transformation, may also give rise to a secondary deposit in the supraclavicular glands.

When once the lymphatic system has become affected the road is open for the transportation of the malignant germs to more remote parts of the body.

As to the physical characters of colloid cancer of the ovary it may be said that in those cases where the ascites does not interfere with abdominal palpation, the tumor either was found to be fluctuating or else presented an uneven nodular surface.

The progress of colloid cancer of the ovary may naturally be surmised by what has already been said and an unfavorable prognosis is always to be given. If the progress of the growth is slow and gradual it may be present for a considerable length of time before irritation of the peritoneum and the resulting ascites take place, and in these cases the patients are free from pain and feel fairly well. In the case of rapidly growing tumors the effect is very disastrous on account of the peritonitis and ascites as well as the emaciation and early cachexia.

The diagnosis of colloid cancer of the ovary is, to say the least, very difficult, and in most cases is practically impossible, but we will rapidly review the symptoms of a malignant tumor of the ovary in general. These symptoms are ascites, metastases in the peritoneum, omentum or in Douglas cul-de-sac that may sometimes be made out by a careful abdominal palpation and the presence of enlarged inguinal glands; the rapid growth of the tumor, the abdominal pains, œdema of the lower extremities, emaciation and cachexia.

The above mentioned symptoms would naturally lead the surgeon to make a diagnosis of malignant tumor, and if we compare these symptoms with those present in a carcinoma, sarcoma or cystoma of the ovary we will find that the symptomatology is practically the same. In making a differential diagnosis between carcinoma and sarcoma of the ovary and colloid carcinoma of the ovary it may be said that the latter differs in its physical characters to a certain extent. Carcinoma and sarcoma show a more uniform consistency, while colloid carcinoma is in part fluctuating and partly solid with a nodular and irregular surface. This condition, however, is also characteristic of ovarian cystoma, so that a clinical differentiation between these two growths cannot as a

rule be made with any degree of certainty and consequently an exploratory incision is the proper course to pursue in order to ascertain the true nature of the growth.

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INDICATIONS FOR CÆSAREAN SECTION AS COMPARED WITH THOSE FOR SYMPHYSIOTOMY, CRANIOTOMY AND PREMATURE INDUCTION OF LABOR.\*

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THERE is no doubt that the practice of obstetricians of repute in the present day is to widen the limits previously enforced for the performance of the Cæsarean operation. The enormous mortality which attended the operation 26 years ago, and which was computed in 1880 from a series of 138 cases, by Harris, at 81.2 per cent, has been so far reduced that in experienced hands it is little higher than that of ovariectomy. Thus Leopold of Dresden has reported 50 cases with a maternal mortality of 8 *per cent*, and Olshausen last year reported a series of 29 with a maternal mortality of only 6.8 *per cent*. This improvement is due entirely to the improvements introduced during this period in the technique of abdominal surgery, and especially in the method of suturing the uterine wound. In several instances Leopold and Olshausen have twice performed the operation upon the same subject with a successful result, and the fear previously expressed as to the ability of the uterine cicatrix to withstand the distension of the growing ovum should subsequent pregnancy occur, has been proved to be groundless. Since the previous strict limitations of the operation to cases in which delivery per vias naturales was absolutely impossible, was largely in consequence of the heavy mortality attending it, the present notable diminution of its mortality

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has naturally reopened the question of its applicability to other conditions than those offering an absolute bar to delivery in any other method. In other words, the question now arises whether the Cæsarean operation should not be performed in order to save the child, in circumstances previously regarded as necessitating craniotomy.

Another recent tendency which is becoming more and more manifest is to regard the operations involving the destruction of a living child in utero as unworthy of the present high efficiency of the obstetric art. It ought to be possible to devise a method by which the lives of both the mother and the child can be saved, and there are indications that we are arriving at that desirable end. Craniotomy for the delivery of a child which has already perished during labor is, of course, a procedure to which no exception need be taken, but the indications for this operation should now be modified to the extent of interdicting its performance upon a living foetus until the possibility of adopting alternative measures, compatible with its survival, have been fairly considered. Of these alternative procedures there are three, viz.: Induction of premature labor, Symphysiotomy and the Cæsarean Section.

Induction of premature labor is of course limited in its applicability to cases in which the patient comes under observation during pregnancy, and a prognosis of difficult labor can be established. The limits of pelvic space requisite for the passage of a viable child are well recognized and require no comment. The methods of starting labor have received no notable additions in recent years. The maternal mortality of the operation in competent hands is probably not more than one to two per cent, but the foetal mortality is unfortunately high, being placed by the most successful operators at 33 per cent. No amount of technical skill can diminish this high rate of foetal mortality, for it depends upon conditions over which the operator has no control, viz.:

- (1) The delicacy of the premature infant, and its consequent liability to suffer from the effects of labor.
- (2) The frequent necessity for interference during labor owing to malpresentations, and deficient uterine action.
- (3) The liability of the child to perish from malnutrition within the first few weeks of extra-uterine life.

Premature labor, therefore, while offering escape from danger

as regards the mother, is of necessity attended with a heavy foetal mortality. It cannot accordingly be regarded with entire satisfaction, for the aim of the obstetrician is not only to deliver the mother, but to bring a child alive into the world, under conditions favorable to its ultimate survival.

The other two alternatives, symphysiotomy and the Cæsarean section, being operations performed at term, naturally offer more favorable chances for the child. Under conditions which prevent the delivery of a living child per vias naturales, these two operations offer the only practical alternatives. Symphysiotomy must of necessity be very strictly limited in its application by the amount of pelvic space available. The object of the operation is to obtain a temporary increase in the size of the pelvis sufficient to allow the delivery of a live child by forceps, as an alternative to craniotomy. The amount of increase in the conjugate which can be safely obtained in this manner without injury to the sacro-iliac synchondrosis is only half an inch; the operation is therefore only applicable to a small number of cases, viz.: those which lie just outside the limits within which delivery by forceps or turning can be effected. Further it is impossible to foresee the amount of dilatation which may occur under the pressure of the forceps when the foetal head is drawn through the pelvic brim, and therefore the operator is unable to control the amount of injury he may inflict on the bladder and other soft parts. It is not a method of delivery, but a method of facilitating delivery, applicable to only a small class of cases. The mortality of the operation has always been and still remains, a large one for a surgical procedure apparently so simple as this. Neugebauer has estimated the mortality of 108 cases recorded previous to 1860 at 36.1 per cent for the mothers, and 44.4 per cent for the children. Later results have improved a good deal, but even in the hands of Pinard, the mortality from 1892 to 1896 was 10.84 per cent for the mothers, and 14.5 per cent for the children. It will be observed that these figures compare unfavorably with those of Cæsarean section already mentioned, the mortality of symphysiotomy being actually more than double that of Cæsarean section.

Comparison of Cæsarean section with symphysiotomy, in the light of modern results, seems entirely in favor of the former. There are no limits to the application of the Cæsarean operation; it can be performed in the worse cases of pelvic contraction; in

obstruction for uterine or extra-uterine tumors it offers not only a means of delivery, but also can be combined with complete removal of the cause of the obstruction; when the obstructing cause is irremovable, the patient can at the same time be sterilized and thus saved from the recurring risk of future pregnancy; it is undoubtedly the most rapid means we possess of emptying the uterus, and may therefore find application in conditions of urgency, apart from obstructed labor; and lastly the mortality attending it, both for the mother and the child is less than symphysiotomy, and is steadily diminishing. The following table compares the most recent statistics of the two operations.

	Maternal mortality.	Fœtal mortality.
Symphysiotomy . . . . .	10.8 per cent.	14.5 per cent.
Cæsarean section . . . . .	7.6 per cent.	7.6 per cent.

If we now refer to the operations done during the last ten years in the Royal Maternity Charity of London, we are met on the threshold of our inquiry by the complete absence of the Cæsarean section. During those years we delivered no less than 40,000 women, and among these deliveries no indication for Cæsarean section presented itself. The explanation of this remarkable fact is a simple one. It is explained by the absence of pelvic deformity in the metropolis of London. This absence is undoubtedly due to the improved and still improving hygienic conditions under which the poor of London exist. It must be further borne in mind that year by year they are recruited by many thousands of destitute alien immigrants who might be supposed to furnish a certain number of cases of pelvic deformity. Among these 40,000 deliveries, only 228 cases required the assistance of forceps, and of these 228, only one woman died. We therefore find that forceps are required in only 5 per thousand of all cases of labor. Among the same number version was called for in 52 cases, and here also only one woman died. Craniotomy was required in only 14 cases out of the 40,000, which sufficiently proves the rarity of pelvic deformity.

The figures given of the Royal Maternity Charity may be regarded as trustworthy and accurate. They are under the control and supervision of the Registrar-General of Births, Deaths and Marriages, and it is well known that this functionary watches

deaths of mothers in childbed with the most zealous care. The conclusions at which I arrive are:

(1) As regards symphysiotomy I consider that the operation has not justified its existence, and I cannot help thinking that in a few years the eminent obstetricians who have been advocating it, will abandon its use.

(2) Induction of premature labor, within certain limits, will always hold a recognized and useful position among obstetric operations.

(3) And lastly we are forced to the conclusion after a careful study of the latest figures which have been published on Cæsarean section, that it is a scientific and justifiable operation, and that it will be more widely resorted to in the future, as the science of obstetrics advances, than it has been in the past.

#### NOTE.

Ever since 1877, when Bouchard and Gimbert revived the use of creosote in the treatment of tuberculosis, which Reichenbach had advocated in 1833, the profession has been making a more or less extensive use of this remedy. A long list of authorities, including such men as Sée, Powell, Yeo and Solis-Cohen, are on record as approving its use. Prof. Sommerbrodt claims that he has succeeded in obtaining the quantity in the blood which destroys the growth of tubercle bacilli which Guttman demonstrated to be one part in two thousand.

Whether this be possible or not, it is certainly true that medical men generally believe that in some cases benefit has come from the use of creosote in this dread disease. The great difficulty has been to give the drug in large enough amounts or for a sufficient length of time, for the stomach almost invariably rebels. Hence the efforts which have been made to attain the same results by inhalations of subcutaneous injection. Both of these methods are so irksome to the patient, friends and physician, that it is with pleasure that all will welcome the combination of Maltine with creosote recently introduced. The value of Maltine in digestive disturbances is everywhere well known and will, we doubt not, lead to a wide trial of this new combination. Should it be proven that sufficient quantities of creosote can thus be administered without gastric disturbance, the manufacturers will have placed us under other and still greater obligations than before.



## INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS.

Third Session, Amsterdam, Aug. 8-12, 1899.

## INFLUENCE OF POSITION ON THE FORM AND DIMENSIONS OF THE PELVIS.

PROF. E. PINZANI.

(Extract.)

WALCHER's paper, published in 1889, on the variability of the conjugata vera, being of practical interest, gave a new direction to previous researches on the mobility of the pelvic articulations. I feel obliged to state here, that, according to some authors, the merit of having made practical use of the current ideas concerning the mobility of the pelvic articulations is not due to Walcher, the position he describes having been recommended in difficult labors, by Scipione Mercurio (1595) according to some, by Sebastian Melli (1721) according to others. Allowing the question to pass whether Melli might possibly have copied the design of Mercurio, I wish to observe that neither the one nor the other can have had in view enlargement of the pelvic dimensions, as in their day the mechanism of the sacro-iliac articulations was unknown. Moreover it ought to be said that though the positions described by Mercurio and Melli have some analogy with Walcher's, there is nevertheless a fundamental difference, as in the former the lower extremities of the woman are always supported, whilst in the latter they are hanging, and by their weight draw the anterior pelvic ring downward and forward. I have examined 62 women during the puerperal state, successively in Melli's and in Walcher's position. In 17 cases exact mensuration of the diagonal conjugata gave no difference, in the other 45 cases there was a difference from one to eight millimeters in favor of Walcher's position. Researches on five feminine cadavers gave the same result for the conjugata vera. Therefore I think, and Pestalozza is of my opinion, that the position with hanging thighs, ought to bear Walcher's name.

*Changes in the pelvic dimensions.*—*Antero-posterior dimensions.* When a woman is placed on a table, with the head and

shoulders slightly elevated and the buttocks somewhat projecting beyond the edge, a cushion being placed under the sacrum, the thumbs being placed on the superior iliac spines, whilst an assistant places the lower extremities first in the lithotomy and then in the horizontal position, finally abandoning them to their weight, the following is observed.

The iliac spines describe part of a circle in a forward and downward direction, the lumbar lordosis increasing at the same time. Moreover, when the lower extremities being in complete extension are allowed to hang downwards, the iliac spinal action continues without the lumbar lordosis being further increased. There is first an increase of pelvic inclination, limited by the tension of the ligamentum longitudinale anterius and the intervertebral joints. By this tension the sacrum is fixed. The anterior pelvic arch being drawn further downward, the effect will not be perceived for the entire pelvis, but only for the iliac bones, which change place in the sacrum. The transverse axis for the movement of the iliac bones lies behind the second sacral vertebra. This axis being situated under the promontory, the symphysis must be removed from the promontory by the rotation, whilst it approaches the point of the sacrum; the sagittal diameter of the brim being consequently increased and that of the outlet diminished. This action of the iliac bones is limited partially by the sacro-iliac articulations, partly by the posterior ligament, and somewhat by the muscles of the abdominal wall and by the psoas.

I need not say that pregnancy will be, generally, favorable to this dislocation of the iliac bones, but I ought to add that individual conditions may diminish, even in pregnant women, this mobility.

At the present moment there is no doubt that the *conjugata vera* increases progressively, when a woman is brought successively in the lithotomy position, the obstetrical position and Walcher's position. Difference of opinion exists only as to the degree of the augmentation. According to the researches of Walcher, Dührsen, Fothergill and Küster, the increase of the conjugata varies from eight to fifteen millimeters. Of those who object to those elevated ciphers I quote Varnier, who says that there ought not to be made a comparison between the dimension found in the lithotomy position, never used in obstetrics, and that of Walcher, but between the measures found in the latter and in the obstetrical

position. In this way an increase of two or three millimeters ad maximum can be obtained, according to his researches. Later experiments of Fehling contradict partially Varnier's pessimism. The results of cadaver-experiments by Walcher, Klein, Varnier and Pinard, and Küttner being incongruent, and on the other hand the clinical observations of Kalt, Wehle and others, showing a considerable increase, I resolved to make some researches for myself.

In 102 women, nearly all in the second week after confinement, and the others in an advanced state of pregnancy, I have measured with the finger with the utmost exactness, the diagonal conjugata in the lithotomy position, in the obstetrical position and in Walcher's position. By the change of the first position into the third I have found an increase in the average of 7.5 millimeters, maximum 17, minimum 2 mm. Between the first and the second position the difference was on the average 1.9, maximum 5, minimum 0 mm. Between the second and the third position (101 cases) the average of the increase was 6.1, maximum 12, minimum 2 mm.

The mensuration in the five female bodies gave smaller differences.

Is it true that the increase of the conjugata vera corresponds exactly to that of the diagonal conjugata. According to Klein the conjugata vera is less, according to Küttner more increased than the diagonal conjugata. In the five bodies I examined the difference between conjugata vera and conjugata diagonalis was the same in all three positions.

Pisa.

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## THE INFLUENCE OF THE POSITION OF THE WOMAN ON FORM AND DIMENSIONS OF THE PELVIS.

DR. G. WALCHER.

(Extract.)

WALCHER memorizes the ancient doctrine, taught by Ambroise Paré and Severinus Pinacus, i. e., the expansion of the pelvis during labor. This doctrine, contradicted by Andreas Vesalius was finally refuted by Hendrik van Deventer, the founder of the doctrine of the contracted pelvis. Since his time the pelvis is considered as a solid ring, as long as the symphyses are intact. In 1804

van Wy gives as his opinion that the base of the sacrum is dislocated backwards after symphyseotomy, whereas G. Vrolik, in 1807, defended an opposite view.

Luschka proved (1850) that the pelvic joints are real articulation, pregnancy and labor increasing their mobility by the juiciness of the cartilages and ligaments.

Next, H. Meyer (of Zurich) has proved that rotation of the iliac bones on a transverse sacral axis is possible, and Korsch demonstrated, in his thesis (1881) that the pelvic dimensions may be augmented up to 3—10 millimeters.

The researches of Budin and Balandin, on living women, prove a mobility of the pelvic articulations, allowing an enlargement of the pelvic dimensions, although almost insignificant in the brim.

Walcher then mentions his own researches, begun in 1885 on dry pelves, in which he found that the antero-posterior diameter of the brim is changeable, as soon as the sacro-iliac articulations allow however slight a movement. He could not continue his researches until 1889, and then he perused them *in vivo*. He started from the idea that it might be possible to obtain an enlargement of the conjugata vera, if the iliac bones could be made to rotate forward and downward. To obtain this rotation he made use of the thighs as a lever. As the ligaments of Bertini prevent an excessive displacement of the femora with regard to the iliac bones, these will be obliged to displace themselves, and to make a rotation as soon as an effort is made to exceed the limit formed by the Bertini ligaments. When the sacrum is fixed, an enlargement of the antero-posterior diameter will be obtained in this way.

Walcher's ideas were confirmed by his researches. He could make the conjugata vera vary about eight millimeters, and he published his results in the *Centralblatt für Gynaekologie*, 1889, No. 51.

When a woman at full term is placed on the border of a table in such a way that the thighs are lifted against the abdomen, the promontory is more easily to be reached than in the dorsal position. In six cases the length of the diagonal conjugata was

by Fröschle,	I para, 10.3 centimeters.
Bröckel,	II para, 10.2 centimeters.
Stockburger,	IV para, 10.2 centimeters.
Heckel, -	I para, 10.4 centimeters.
Bischoff,	IV para, 10.2 centimeters.
Hetzler,	III para, 9.7 centimeters.

Lowering then the thighs as much as possible he found that the promontory was dislocated backwards. Subsequent measurement then gave the following result:

Fröschle,	11.1 centimeters, i. e., a difference of 9 millimeters,
Brockel,	11.6 centimeters, i. e., a difference of 13 millimeters.
Stockburger,	11.0 centimeters, i. e., a difference of 8 millimeters.
Heckel,	11.2 centimeters, i. e., a difference of 8 millimeters.
Hetzler,	10.5 centimeters, i. e., a difference of 8 millimeters.
Bischoff	11.5 centimeters, i. e., a difference of 13 millimeters.

When the pelvis is only moderately contracted, the promontory cannot be reached when the thighs are lowered.

The diagonal conjugata is therefore not a constant, but on the contrary a variable dimension.

He could demonstrate this variability in a woman who died of eclampsia and found a variability of the conjugata vera of eight millimeters.

The publications of Zalasky and of G. Klein confirmed the essential part of Walcher's results. However, Klein thought he might substitute the thighs by a weight attached to the anterior pelvic wall. This is erroneous, because the action of the femora as levers then fails. Still Klein found once a difference of eleven millimeters. The differences stated by Walcher are, on the average, greater on account of his experiments being made on pregnant women, whilst Klein made his experiments on cadavers of every kind.

The introduction of symphyseotomy (1893) caused new investigations to be made. At the Congress of German obstetricians at Breslau (1893), Dührssen and Fehling adopted the position with hanging thighs, the advantages of which were confirmed by observations taken in Leopold's clinique by Wehle. Walcher will not discuss the unparliamentary attack made by Varnier. In the last years a great number of papers were published, almost all favorable for Walcher's ideas.

Stuttgart.

ON THE RELATIVE VALUE OF ANTISEPSIS AND IMPROVED TECHNIQUE, FOR THE ACTUAL RESULTS OF OPERATIVE GYNECOLOGY.

L. GUSTAVE RICHELLOT.

(Extract.)

For the answer to this question, it will be necessary to first examine operative results, and we have therefore to discuss, first, the evolution of antiseptics, the part it has to play and its limitations; second, the important modifications undergone by the technique in use of late years, and to point out how necessary it is to be a thorough surgeon, in order to practice surgery with success.

OPERATIVE RESULTS.

*The Development of Antisepsis.* With Lister's method began the revolution, which created the possibility for future perfection in technique, but it was not flawless, and is not so yet. In the beginning, all danger was supposed to come from the air and from the invasion of wounds by atmospheric germs. Carbolic acid then reigned supreme, and this first period has been termed "empirical,"—not entirely without reason. Afterwards came a time of more exact researches into the various causes of infection and the preventive measures to be adopted. Morphological investigation and experiments *in vitro*, became the law. This was the era of scientific credulity, when nothing more was aimed at, beyond making use of the best laboratory-antiseptic for sick-room purposes.

It was not long, however, before the discovery was made, that the very best antiseptic *in vitro*, does not retain its value for clinical purposes, and that laboratory prognoses were not always to be relied upon. It was found that the use of antiseptics was not only inefficient but at times dangerous. Hence, it gradually became more or less discredited, whilst sterilization by heat has been daily gaining favor. This brings us to the present time.

The utilization of heat for the destruction of germs, and for sterilizing instruments and dressings, originated with Pasteur and has well nigh attained perfection; its assistance in the struggle against infection is not to be denied.

Should it be considered as a *new* method? It is asserted to be so, by a class of surgeons who own that antiseptics has been exchanged

for asepsis. It strikes me that here must have been confusion of ideas. Asepsis is the aim, antiseptics the way. Heat has been substituted as much as possible, for powders and solutions, but heat, in itself, is only the most powerful antiseptic. I will therefore continue speaking of the "antiseptic" method. Moreover heat is not adaptable to all purposes, and we cannot do without other antiseptics as well.

It cannot be asserted that the utilization of heat has simplified matters. On the contrary, sterilization can only be obtained by a very complicated and expensive apparatus, demanding the most careful manipulation.

It is a great mistake to suppose, as some do, that so-called asepsis is nothing more nor less than ordinary cleanliness; we can safely aver that the continual effort to attain asepsis by every means, has brought forth the most admirable results.

The boundary line of antiseptics must now be traced. We are enabled, to a certain extent, to prevent ourselves from carrying infection to our patients, but as personal asepsis does not destroy the existence of bacteria, we are fighting with unequal weapons against preëxistent infection. For instance, if in course of abdominal salpingotomy, the purulent sack should burst, "contaminating the peritoneum by its contents," if the matter be particularly infectious, the patient will die, whatever may be done to avoid fatal results. It can, however, also happen that when in similar cases, the focus be carefully cleansed and drained with gauze, the patient recovers, after a few bad days. How are we to explain this? It may be that the pus was less virulent; or that the organism defended itself, no share in the recovery being due to ourselves.

This notion concerning the powers of self-defence in the organism has rectified the absolutism of the earlier ideas on the subject of micro-organisms (the specific gravity and degrees of virulency in microbes). Bacteriologists have acknowledged its importance, and shown its mechanism, by demonstrating phagocytosis. The living organism is able to defend itself, it beats off attack, when not in a debilitated condition, and armed with all its resisting-power. If this is not the case, hope is lost. We should not expect too much from "*Natura medicatrix*," and when in an enfeebled condition should give it the support that is wanted. Surgical art is now called upon, and the importance of technique

stands revealed. Antisepsis is the same for everyone and demands only passive obedience to certain rules. On the contrary, technics vary, and are subject to personal aptitude.

The value of antisepsis is, within narrow limits, absolute; the value of the technics is relative and unlimited. It depends on the operating hand and on the directing head.

*Evolution of Technique.* The great technical improvements have been rendered possible by the use of anæsthetics, exact hemostasis and antisepsis.

*Instruments.* Amongst the numerous inventions under this heading, that our time has produced, the greater quantity can safely be consigned to oblivion. We acknowledge the value of artery clamps, and are much indebted to the Trendelenburg position, but as for the rest, we do not place too much reliance on instrumentary innovations. The best results are obtained by the surgeon who knows how to use his hands and his common sense.

*Surgical ability* in the widest sense of the term, is comprised in the three chief qualifications: dexterity, ingenuity and judgment.

Dexterity varies in its nature—some possess the gift by birth, others never acquire it, and most manage to do so, and to develop it by practice. Anyone can observe this by himself. An able surgeon operates quickly, so as to minimize the dangers of a long operation, i. e., greater chances of infection, hemorrhage, shock, etc., although quickness of execution should never be allowed to encroach on careful operating.

The ingenuity of gynecologists has opened several entrances to the pelvic organs, and taught us various methods of proceeding, although it must always be remembered that for methods, as for instruments, excess does not mean riches.

The history of operative treatment of pelvic diseases, fibroids and uterine cancer, etc., shows how important is the choice of the *Operative Way*. To make sure of selecting well, we must have broad views on the subject. "Not one of us has the right to be imperfectly educated."

Methods continue to become more and more simplified, and in that way lies progress. The successive extraperitoneal and intraperitoneal treatment of the stump, and total extirpations in the abdominal operations for fibroid, furnish the example. Another is found in the application of "pincers à demeure" in vaginal hysterectomy.



Whatever way may be followed, whichever may be the method chosen, the *details of execution* will always decide the point. The true surgeon shows himself, who seems to be operating easily, and manages to produce the impression that anyone else could do the same.

*Therapeutic Results.*—Obviously the best methods yield to the most favorable results, but it is not to demonstrate this I am now addressing you, but to speak of the relative value of antiseptics and technique—assigning to each its share in the final results. I will not select my examples amongst dangerous operations and merely remark that, whilst in these many operators ascribe their good results to antiseptics alone, it is the contrary for minor operations where the importance of *method* is greatly exaggerated. The question concerning abdominal suture and colporrhaphy points to the conclusion that it matters less what is done, than how.

To conclude, I wish to remark that the union of antiseptics with improved technique paves the way for conservative gynaecology, and that in this direction lies the progressive improvement we hope to attain.

Paris.

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### RELATIVE WORTH OF ANTISEPTICS AND TECHNICAL IMPROVEMENTS FOR THE ACTUAL RESULTS OF OPERATIVE GYNECOLOGY.

E. BUMM.

(Extract.)

THE absolute reliance on the protective power of antiseptics has been a good deal diminished by exact investigations, as it has been proved by a whole series of experiments and observations that elimination of all micro-organisms during the operation, has not yet been attained.

We can sterilize the instruments and dressings, but no method has been discovered, at least up till now, that gives us with certainty, the same result as to the skin of the hands and the part to be operated on.

A year's bacteriological research made during a great number of operations from beginning to end, the skin of the hands as well

as the operation field, the wound, the instruments, the dressing-and ligature-material, have given me the following results:

1. There is no way to remove with certitude all micro-organisms from the hands. The successive use of soap and hot water, of alcohol, and of a solution of lysol or sublimate, for ten minutes each, are not sufficient to sterilize the skin with certainty.

For these experiments rigid precautions, as prescribed in Hägler's method, are necessary to obtain satisfactory results. Above all it is not sufficient to examine only a small part of the hands, to remove the adhering remainder of the sublimate, taking into account the shrivelling of the skin by the alcohol.

2. The same conclusion is to be drawn with regard to the skin of the rest of the body and especially for the external genitals, the perineum, the vagina, etc.

3. During the course of the operation we find on the instruments and ligatures and in the wound principally the micro-organisms originating in the deeper parts of the epidermis and from the glandular ducts. In fifty great operations, under exact control, none were found entirely free from the presence of micro-organisms.

4. With the "aseptic" method, even when the operation is made in the best conditions and with the greatest precautions, the number of micro-organisms is far higher than that which is found in using the antiseptic method. At the end of the operation the, so-called sterile salt-solution contains regularly micro-organisms and sometimes in great number.

5. The micro-organisms of the atmospheric dust are but of small importance in the infection of operation wounds.

6. Difficult as it is to operate without giving access to the micro-organisms, it is still more so to keep them away from the wound and its surroundings for a longer amount of time.

It is therefore illusory to think that either asepsis or antisepsis can bring about a sterile condition of the wounds. According to circumstances there will be in every wound more or less bacteria.

In spite of this proved presence of micro-organisms most wounds heal without suppuration or fever. This result is due to the bactericidal power of the organism.

But this bactericidal power of the organism can be insufficient, and this occurs when the wound is brought into contact with virulent micro-organisms or when it presents bad conditions for the

full development of the bactericidal qualities of the tissues and humors.

Formerly the access of virulent micro-organisms to the wounds was only a question of chance. Actually antiseptics gives us the means to avoid this contact. But, as virulent micro-organisms are generally found in the secretions of wounds and in the humors of the infected body, and as, on the other side, a true disinfection of the hand, impregnated by these infective secretions, is impossible, the dominating element of every asepsis or antiseptics should be the avoidance of the contact with septic matter, abstinence when the contact has taken place, and isolation of septic patients.

The second possibility of insufficiency of the bactericidal power of the organism brings us to a point, where the territory of technique covers that of antiseptics. Technique has to remedy the insufficiency of our antiseptic and aseptic means, it has to arrange the conditions of the wound in such a way that the organism be able to win the struggle against the never entirely missing bacteria.

In this view it can be said that purely technical means have a great influence on the aseptic healing of wounds.

I should like to give some examples to show this more clearly.

*A short and well-conducted operation* exposes the tissue only for a short time to the influence of exterior surroundings and brings manipulations to a minimum; in this way it diminishes the chances of accidental infection. The number of micro-organisms entering the wound will be a good deal less than in an operation of long duration, in which the tissues are lacerated by repeated manipulations.

In addition to this a short operation does not so much tax the resisting power of the wounded tissues as well as of the entire organism. To expose the peritoneal cavity during a long time has a well known bad influence on the heart, the intestines and the serosa. Asepsis has delivered us of the dangerous application of too much concentrated disinfectants.

The importance of *haemostasis* for the aseptic healing of wounds is universally recognized. The drier the wound, the better are the chances for primary healing. On the other hand the blood, as soon as it has left the vessels, loses its bactericidal properties and becomes an excellent medium of culture for the micro-organisms. This being especially the case for the peritoneal cavity, for ab-

dominal operations exact haemostasis is at least as important as exact asepsis.

Next in importance comes the choice of the *operative way*. Neither the operation per vaginum or per laparotomiam should be condemned by principle. In cases when per vaginam the part to be operated can be better exposed to view, so as to facilitate exact haemostasis and avoid injuries of the surroundings, presenting as it does the least danger, it is therefore the best.

But should it appear that the employment of this method prevents obtaining a good view, it would be better to overlook the difficulties belonging to asepsis and follow the directions of the technique demanded by laparotomy.

A last point, where antisepsis and technique meet is *drainage*, and especially drainage of the peritoneal cavity. It is an established fact that drainage, even on the greatest scale, has no effect whatever on diffuse septic peritonitis. But the case is quite different when we have local troubles to deal with, as circumscribed abscess, extensive lacerations of the serosa or contact of the serosa with infectious matter. In these conditions we ought not to expect more of the peritoneum than from any other wound, and I then apply drainage by gauze tampons, from which mode of treatment I have never experienced other than favorable results, and would prefer applying it once too often than omitting it.

From all this the conclusion ought to be that to obtain an entirely satisfactory result, antisepsis and improved technics have to go hand in hand. The one without the other is not sufficient. The history of intraperitoneal treatment of the stump in myomiotomia furnishes a good example of the importance of technique in relation to antisepsis.

Antisepsis is easily learned and executed. But technicalities are more difficult to learn; they represent an art that demands above all things a born aptitude. It is high time for instruction in surgical technique, of late much neglected for antisepsis, to be reinstated in its place of honor.

Basel.

## THE SURGICAL TREATMENT OF FIBROMYOMA.

PROF. SCHAUTA.

(Extract.)

SCHAUTA contributes the result of his personal experience founded on 424 cases of operative treatment of myoma uteri with opening of the peritoneum, in a number of 2,263 peritoneal operations performed by him.

*General Indications.* Tumors are only to be treated surgically in cases where all other treatment has failed. When they merely exist without causing pain or any other symptoms, it is not justifiable to operate.

*Palliative Operations:* Curettage and castration. These should be generally set aside as inefficient and very often dangerous, and only be resorted to in cases of very small intramural tumors that cause no plastic changes in the uterine cavity.

Schauta performed castration 45 times, with three deaths, two from interior hemorrhage, after the ligature had slipped off, and one from peritonitis.

*Vaginal Radical Operations.* Removal of sub-mucous pedunculated tumors or of those with broad implantation, through the dilated cervical canal.

There is little to remark about the first, the way being clearly shown. It is always a legitimate treatment, even in cases where there is evidence of tumors in utero, on account of its absolute freedom from danger and painfulness, and because hemorrhage ceases after the ablation.

With *broad-based* submucous myomata it is necessary to dilate and sometimes to cut open the cervix. Enucleation is only indicated when part of the tumor is born. The operation must, on no account, last longer than one séance on account of the danger arising from possible sepsis, or gangrene.

Interstitial, or sub-peritoneal tumors, when isolated, and not larger than a man's fist, may be treated by vaginal coeliotomy and enucleation, the bed of the tumor being stitched up afterwards.

This operation forms the transition to intraperitoneal treatment for tumors, which consists in discision of the cervix, detachment of the bladder, opening of the peritoneal cavity, section of the capsula, enucleation of the tumor and stitching-up of the

wound and the uterine wall. The uterus can also be left alone, or if there is any danger to be feared, from secondary hemorrhage or infection, treated extraperitoneally between bladder and vagina.

*Vaginal Total Extirpation.* By principle this should be preferred to all other operations for myoma. The suitability for this operation should be determined by the upper limit of the tumor, which should not extend above the umbilicus, and upon whether it can be pushed into the small pelvis; 148 cases, with five deaths, of which two could not be considered as resulting from the operation, i. e., one from intestinal stenosis, and one case of putrid myoma; of the remaining three, two were lost by secondary hemorrhage, and one by peritonitis.

Schauta's technique is so far different from the usual method that after anterior and posterior opening of the peritoneum, he stitches their edges to the corresponding edges of the vaginal walls. The broad ligaments are secured by ligatures, and he then amputates the cervix as high as possible. He does not employ forcipressure.

*Abdominal Radical Operations.* Abdominal enucleation for the removal of pedunculated myomata by laparotomy. Enucleation is called for only in cases of isolated tumors, not larger than a man's fist; the indication is therefore of rare occurrence. The same is to be said for pedunculated tumors, as they are seldom found isolated, and their removal demands amputation, either supra-vaginal or total extirpation. Schauta performed enucleation 25 times, with five deaths, of which three were from emboli and pneumonia.

*Supra-vaginal Amputation.* Extraperitoneal treatment of the pedicle.

Schauta, formerly a partisan of this operation, practices it now only in exceptional or urgent cases. About the technique need only be mentioned that amputation of the uterus does not take place before having stitched the peritoneum of the pedicle, underneath the ligature, to the parietal peritoneum of the lower angle of the wound, as a preventive to infection of the peritoneal cavity by the contents of the uterus. Of 78 similar cases, thirteen deaths, two from pneumonia, one from fatty degeneration of the heart, and one from rupture of a pyosalpinx, with peritonitis.

*Intraperitoneal Treatment of the Pedicle.* As an advocate of

abdominal total extirpation, Schauta only applied three times intraperitoneal treatment of the pedicle, twice with fatal results. He admits the primary advantages of this method, but considers the frequent occurrence of exudation, and the possibility of malignant degeneration of the stump, of far too great importance to be overlooked, and therefore searched for a better method.

*Abdominal Total Extirpation.* The only objection to this method is its difficult technique, whilst it may also be considered that the rate of mortality is slightly higher than with extraperitoneal treatment.

Schauta obtained the following results: On 106 operations, 12 deaths, i. e., 15 per cent. There were, however, but 10 of the number that could be considered as the direct result of the operation, bringing the percentage to 9.4 per cent; the others were due to complications, as paralysis of the vagus, serious anemia, emboli, etc.

Schauta employs the following technique: After eventration of the tumor, the broad ligaments are secured on either side by forceps, two on each side; he then makes the incision of the serosa and detaches the bladder as far as the insertion of the vagina, the parametria, quite near the uterus, are clamped and the incision of the uterus made. Two clamps are likewise placed right and left of the lateral vaginal pouches and the vagina opened right and left. The tumor now hangs to a narrow bridge formed by the anterior and posterior vaginal walls. This bridge being in a similar way secured by two curved volsellæ, the uterus is severed. To the clamps are substituted ligatures, which are not cut short, to be used for drainage, and finally the peritoneum of the bladder is united with that of the posterior vaginal wall. Whether the ovaries should be removed or not, is a question which gives rise to great difference of opinion, and which requires a long course of careful observation in order to be solved.

Schauta is no advocate of forcipressure, having lost seven patients on the 40 cases when he had applied this method to vaginal operations, nearly all the deaths being due to secondary hemorrhage after removal of the clamps.

Drainage is recommended, as well as in cases of total abdominal extirpation. The supravaginal wound cavity is for this purpose left open towards the vagina, the threads which are left long, perform the drainage.

## CONCLUSIONS.

1. Operative treatment for fibroid tumors is not legitimate except when they are the cause of troubles that are not to be conquered by other means.

2. Vaginal total extirpation should be considered as the safest, and in the long run, most successful operation. It should be performed in all cases when the tumor does not extend above the level of the umbilicus, and when it can be easily drawn into the small pelvis.

3. For large, not easily movable tumors, wholly or partially intraligamentary, abdominal total extirpation should have the preference.

4. Supra-vaginal amputation with intra-peritoneal treatment of the stump, gradually should be set aside in favor of abdominal total extirpation, although the immediate results of the former are sometimes more favorable; it has been proved that there are more chances for absolute recovery, when no part of the cervix has been allowed to remain.

In emergency cases, supra-vaginal amputation with extra-peritoneal treatment of the stump may be, as it affords facility for speedy and absolute extraperitoneal execution, an advantage not to be underrated, in cases of extreme anemia, asphyxia, weakness of the heart, and suppuration or necrosis of the tumor.

6. Vaginal enucleation of broad-based, sub-mucous tumors, either by way of the dilated cervix, or by the vaginal fornix, after anterior or posterior kolpotomy, with or without opening of the peritoneum, should be only resorted to in cases where there are special indications. Myomata being generally multiple, it would not be likely that the operation would afford durable results, and therefore cannot be considered as less dangerous than the radical operation, with removal of the uterus.

7. Curettage should be looked upon as an uncertain mode of treatment, is neither wholly free from danger, and should be limited to rare cases of beginning myomatous development.

8. Castration should be strictly objected to on the ground of its not bearing comparison with the radical operations with regard to reliability and immunity from danger. In quite exceptional cases, when it is not possible to perform supra-vaginal amputation with extraperitoneal treatment of the stump, it may now and then be resorted to.



9. It is not to be thought that the methodical use of forcipressure affords the patient advantages superseding the use of ligatures, except in so far as they facilitate a speedy operation in typical cases. In cases of emergency or danger their use is certainly to be justified.

10. The full value of drainage of the supravaginal wound for furthering throughout the chances of asepsis, and for the avoidance of exudation, in abdominal as well as in vaginal total extirpation, should be always kept in mind.

11. The question, if removal of the ovaries should be performed, with vaginal or abdominal total extirpation is not yet decided. "Ausfall-erscheinungen" (Climacteric Symptoms) have been observed either way.

If the ovaries are removed they appear immediately; if left behind, after weeks and sometimes months.

Vienna.

#### INDICATIONS FOR CÆSAREAN SECTION AS COMPARED WITH THOSE FOR SYMPHYSIOTOMY, CRANIOTOMY AND PREMATURE INDUCTION OF LABOR.

PROF. LEOPOLD.

(Extract.)

PROF. LEOPOLD makes a very exact classification of the various degrees of pelvic deformity and distinguishes between the cases of primiparous and those of multiparous women.

Three degrees of contraction ought to be distinguished:

I. The conjugata vera is more than 7 centimeters in the contracted non-rachitic or rachitic pelvis, more than  $7\frac{1}{2}$  centimeters in the justo-minor pelvis.

II. The conjugata vera is less than 7— $7\frac{1}{2}$  centimeters, but more than 6 centimeters.

III. The conjugata vera is less than 6 centimeters.

In the first group primiparæ generally have a tolerably good labor. The method of proceeding consists in preserving the membranes and waiting. The contraction in itself makes no demand on operative treatment. When the membranes are ruptured the colpeurynter may be introduced, or the descent of the

head may be facilitated by placing the woman in Walcher's position.

With care and patience many useless and dangerous operations can be avoided.

When the head does not enter the pelvic brim—perhaps on account of a bad presentation (the case approaches the second group)—a distinction is to be made between cases treated in hospitals and in private practice.

In the hospital, Prof. Leopold does not hesitate to perform the Cæsarean section when all other means have proved useless and *when mother and child are in good condition*. *When the child is in danger* he prefers craniotomy, certainly the only legitimate operation when the child is dead.

In private practice craniotomy is the only indicated operation when the head is retained by a pelvis, too narrow to allow the passage of a living child.

Though Pinard has given as his opinion that "craniotomy of the living child ought never to be performed," and that "embryotomy of the living child is condemned," Prof. Leopold, appreciating the ideal view taken by the celebrated French obstetrician, agrees with Charles (of Liege) "that it is not easy to act up to these rules."

Doubtlessly craniotomy on the living child ought to be avoided as much as possible, and an operation, inoffensive for the child, ought to take its place, but *in difficult cases in private practice*, craniotomy, which saves the mother, is preferable to Cæsarean section or to symphysiotomy, which give a considerable maternal mortality.

In the third group Cæsarean section alone is indicated, forceps and version being impossible, and the extraction of the child after perforation, even after symphysiotomy being very difficult, if not counter-indicated.

With *multiparae* the difficulties of labor are greater because of the greater weight of the foetus and the lesser intensity of the contractions of the uterus and the abdominal walls.

In private practice the premature induction of labor, either by the bougie, or by the intra-uterine bag, is and will be the choice operation in the pelves of the first group, notwithstanding the brilliant results of Cæsarean section and of symphysiotomy.

With the use of the bougie, the place of insertion of the pla-

centa is to be taken into consideration. The converging or diverging of the Fallopian tubes and the round ligaments enables us to ascertain this place, and the bougie ought to be introduced in that uterine part which is opposite to the insertion of the placenta. During labor, rupture of the membranes has to be avoided and the descent of the head to be assisted, for in premature labor the prognosis of head-presentations is far better than that of other presentations. By the aid of Walcher's position the conjugata vera is widened from  $\frac{1}{2}$  to 1 centimeter.

The results of premature labor are very satisfactory. Many obstetricians have noted from 60 to 80 per cent living children, on leaving the hospital the eleventh day after delivery.

In private practice the difficulty for the obstetrician is to determine the stage of pregnancy, the exact pelvic mensuration, and to obtain all that is necessary for the child (couveuse, nurse, etc.). Many of the bad results are due to such precautions being neglected.

When the accoucheur is called and labor has begun with a multipara of the first group, above all things rupture of the membranes must be prevented, the colpeurynter must be introduced and then wait for complete dilatation. If at that moment the membranes are intact, Prof. Leopold prefers podalic version, followed by extraction, facilitated by the enlargement obtained by Walcher's position. Although by the aid of complete narcosis, version is not impossible some hours after the rupture of the membranes, the results for the child are still a good deal less favorable, the difficulty or even the impossibility of version necessitating often dangerous operations.

In the pelvis of the second group craniotomy should be performed when the child is dead. Prof. Leopold prefers also craniotomy to the other operations when the child is in danger or the mother exhausted or ill. When the child is in good condition, Cæsarean section or symphysiotomy can be done in *hospital practice* (personally Leopold prefers the first operation).

In *private practice* these two operations may be, now and then preferred to craniotomy, when the obstetrician is very skilful, has sufficient assistance and when the woman is in very good condition.

In the third class of pelvis, Cæsarean section is the only opera-

tion indicated, alike for primi- or multiparæ, symphysiotomy being forbidden by the excessive contraction of the pelvis.

## CONCLUSIONS.

I. *Before term.*

1. When there has been one or more difficult labors caused by pelvic deformity, premature induction of labor is indicated when the pelvis is not too much contracted (conjugata vera more than 7 centimeters in flattened pelvis, more than  $7\frac{1}{2}$  centimeters in the justo minor pelvis). The best moment for intervention is the 35th week of pregnancy. Good results are not to be expected unless the membranes remain intact and there is a head-presentation.

II. *At term.*

2. Craniotomy is indicated:

a. When the child is *dead* and labor does not advance, even when the pelvis is only slightly contracted.

b. When the child is *in danger*, the contracted pelvis being an obstacle for spontaneous birth, forceps and version being too dangerous or impossible. This rule is valuable equally for hospital and home practice. The danger for the mother is too great to risk Cæsarean section or symphysiotomy when it is not quite sure that a living child will be born.

c. When the child is *in perfect condition*, craniotomy will be performed only as an exception in hospital practice. But in private practice it is indicated when spontaneous birth, forceps and version are excluded and the termination of labor is necessary, the obstetrician, all circumstances duly considered, regarding Cæsarean section or symphysiotomy too dangerous. The conjugata vera must be more than 6 centimeters.

In exceptional cases, when for private reasons, it is important that the child is born living, should it be only for some minutes, the advice of a colleague is to be asked and the family of the woman is to be acquainted with all the dangers accompanying the operations by which the child can be saved.

3. The *Cæsarean section* has absolute or relative indications. In pelves with a conjugata vera of  $7\frac{1}{2}$ —6 centimeters the indication is a relative one. When this diameter is less than 6 centimeters the indication is an absolute one.

Cæsarean section on relative indications requires the fulfilment of the following conditions: a spontaneous birth being impossible,

forceps and version inadmissible, the child *in perfect condition*, and the woman either in a hospital or in circumstances quite as favorable as to the operation itself and as to subsequent nursing.

When the circumstances are not favorable enough, craniotomy of the living child is to be preferred.

4. Symphysiotomy is only indicated in pelves with a conjugata vera of  $7\frac{1}{2}$  to  $6\frac{1}{2}$  centimeters; the indications are therefore much more limited than those of Cæsarean section and do not all regard the pelves of the second class. With this restriction symphysiotomy may compete with Cæsarean section on relative indication, and requires the same conditions. When these conditions are not fulfilled, craniotomy must be performed.

The choice between symphysiotomy and Cæsarean section, as relative indication depends on the experience of the operator.

The results of both operations, performed under the same conditions, are almost equal for the mother as well as for the child

Dresden.

### AN IMPORTANT OBSERVATION.

Prof. Burney Yeo, of London, states in his latest work on Clinical Therapeutics that many of the common forms of diarrhœa are accompanied by excessive acidity of the intestinal contents, and that they may be promptly cured by antacid remedies without the use of astringents.

These forms of diarrhœa are associated with the growth and multiplication of micro-organisms which induce intestinal fermentation and consequent local irritation from decomposing food products.

The therapeutic indications in these cases are clear, viz: check intestinal fermentation, neutralize acidity, and overcome the existing atonicity and catarrhal inflammation of the intestinal mucous membrane. Lauder Brunton speaks highly of the value of glycerine as an intestinal antiseptic. In combination with digestive tonic alteratives and antacids, as it is in Gray's Glycerine Tonic Comp., it fulfills all the existing indications, and moreover promotes the digestion and assimilation of food so that the normal nutritive processes are speedily reëstablished. It is of particular value in diarrhœa occurring in people of impaired vitality as it not only cures the intestinal disturbances, but it also restores tone to the enfeebled system.

## SELECTED ARTICLE.

## SURGICAL DISEASES OF THE LIVER.

I. S. STONE, M.D.

GENTLEMEN,—I am pleased to be with you, and talk to you for a short time on what may be called the *Surgery of the Liver*. You must not expect any important communications, for, although surgical operations in their phases are familiar to those who perform them, a description is difficult to put into words, and I also feel a little embarrassed in speaking before young men who are just now in the midst of their studies, and whom I feel are more familiar with the texts of their physiologies and anatomies than I am myself. But we will not longer discuss this matter, and will get down to the subject for the hour.

I need not tell you that the liver is below the diaphragm. A certain doctor had a patient who sustained a railroad accident. The patient died and the autopsy was made. He gave a certificate of death due to "injury of the abdomen, with the liver displaced below the diaphragm."

The liver occupies the right hypochondriac region, and in normal condition its lower border reaches the margin of the ribs on that side—hence it is customary to say that the liver is not below the level of the ribs. The eighth, ninth and tenth ribs cover the lower border of the liver. The left lobe of the liver extends far beyond the median line. The liver is quite movable in respiration, and in a great many instances it is prolapsed.

## ABSCESS, HYDATIDS AND CANCER.

Now, to pass on to the subject of *diseases of the liver*. The first and most important is *abscess from infection*, then *hydatid cyst*, and lastly *tumors and cancer*.

*First.* Abscess of the liver occurs mostly in tropical countries. For instance, those who reside in this latitude, and visit tropical countries, are apt to have abscesses of the liver before they become acclimated, especially if any diarrhœal or dysenteric troubles

arise. The clinical history is a most important aid to diagnosis, whether a patient is in his native home or not. Among the symptoms are rise of temperature, quickening of the pulse, and very great constitutional disturbance.

Diagnosis is very difficult, and inquiries as to residence and previous history should always be made. It is important to make the diagnosis before the disease has gone too far. Usually, abscesses of the liver are single. In the majority of cases it is so, but in a number they are multiple; apparently, two, three and four in number, as several points of infection may result in as many abscesses. But they seem to open from one into another, and after an operation by aspiration, or by abdominal section, the second or third abscess in process of formation will discharge into the cavity previously formed, and thus gain access to the drainage tube. If an abscess is neglected too long, it must rupture somewhere. A large number has been shown to open through the diaphragm into the pleural cavity, or pericardium, or lung. Should it open through the lung, the prognosis is favorable; also the opening into the intestine or through the abdominal wall; but if it opens into the peritoneal cavity, it is almost always fatal.

Modern surgery of the abdomen has taught us important lessons in dealing with these abscesses through the peritoneal cavity. Lawton Tait deserves credit for boldly opening such abscesses through this cavity, and he taught that it was quite as safe, or even safer, to open through the abdominal cavity than to make a puncture.

To go back to some symptoms of abscess of the liver: Besides the chemical tests, there is usually a white coating on the tongue and pain in the right shoulder as well as in the liver itself. It is remarkable and impossible to explain why diseases of the liver are accompanied by pain in the right shoulder. In some cases of abscess we can get fluctuation, but this is depended upon as a diagnostic point now, much less than formerly. When an abscess has reached such great size as to present the sign of fluctuation, the patient is in a critical condition, and almost sure to die.

Jaundice is supposed to be present in abscess of the liver, but is not usually found unless the coloring matter of the blood has been influenced by sepsis. It may be due to pressure upon the liver ducts, but abscess is not primarily a condition which causes jaundice. The chief characteristic of the pus in the majority of cases

is that it has a dark brown or chocolate appearance, and it sometimes becomes as black as pitch.

Cancer of the liver may simulate abscess, but if you have once seen a cancer of the liver you will know it by the presence of the hard nodules or hob-nail condition of the liver so characteristic in that disease, for in abscess the liver is tender and smooth, and not so much enlarged.

The treatment of abscesses of the liver is chiefly surgical; it really cannot be treated in any other manner. As soon as the abscess is found, make an incision and evacuate the pus. Of course, there are men in whose hands aspiration would be safer than to make an incision; or, if you have a patient where a surgical operation cannot be thought of, it is far better, if the abscess is pointing high, to make an aspiration, and you might save your patient, where it would be dangerous to operate. But where good surgeons are to be had, and the abscess is pointing lower down, it is always better to open through the abdomen and properly drain. This instrument will show how it can be punctured and safely probed—(Hodder's trocar probe).

Some physicians have favored incisions of abscesses by taking out a section of a rib, and applying some caustic or irritant agent to produce adhesion between the surface of the liver, diaphragm and pleura. The pleura will be punctured when the abscess points high, but adhesions will guard the canal through which the pus would escape.

Some have used a cautery to burn through the abscess wall to avoid hemorrhage, but I do not recommend it, as packing will answer. An incision of the liver is almost sure to produce some hemorrhage. This operation, which some perform to cause adhesion to the peritoneum or pleura, is called an operation in two stages. It has its origin with the French.

Operations for abscess of the liver in the hands of surgeons generally have been attended by a much higher mortality than they should be. Many have lost a number of cases, while others have brought down a mortality of 40, to about 8 or 10 per cent. cent.

*Second. Hydatids of the liver* are frequently mistaken for tumors of other organs. Many men have thought that these tumors were of ovarian origin. An abscess is limited in size and can never be very large—in fact, could not be greater in size than the



liver itself. An abscess will contain as much as a pint or possibly a quart of pus. The hydatid cyst may fill the abdominal cavity, and weigh a great many pounds; and if you can diagnose a large tumor of the liver, you will almost invariably discover that it is a hydatid. They are not very frequent. Some reports in works on surgery give tables of 50, 60, or 100 operations. The relative importance of this matter will have to be considered from that standpoint. You may perhaps never see one in your practice. I have seen but one, and never operated for one. It is a rare disease in Washington. If you should see one, though, you will naturally make a mistake of diagnosis. They sometimes grow rapidly, and again are many years forming; but, as a rule, grow rapidly and without constitutional disturbance. An abscess causes great constitutional disturbance, but it is just the opposite with the hydatid. It is well known that cancer causes the most pronounced constitutional disturbance, and you will rarely mistake any other condition for malignancy.

#### BILIARY OBSTRUCTION.

The next part of the subject will be in reference to *gall bladder surgery*.

When the liver is in normal position, the gall bladder is felt only when it is enlarged. If you take a normal patient, unless very thin, I doubt if any one can feel the gall bladder. The appendix is easier to find, but, if the liver is enlarged or prolapsed, the gall bladder may be discernible. A great many physicians have mistaken a distended gall bladder for appendiceal abscess. We will dwell on the subject of its surgical treatment later.

*Diagnosis.*—The patient has a tumor below the rib on the right side. You will find an increasing tumor growing from the rib downwards. In cases of appendicitis, your patient will have sharp pains, a quick, sharp attack, rise of temperature, etc., and the seat of pain will be lower down or near the so-called McBurney point. On the other hand, a distended gall bladder produces less severe symptoms, a gradual rise of temperature, and probably will be several weeks before it comes down to the level of the umbilicus. It is always oval, or perhaps heart-shaped. The lower end when distended, may properly be described as heart-shaped. I recently saw such a case, and stated at the operation that it looked like a heart—the color and shape of the apex of the heart. As far as diagnosis is concerned, such a tumor may deceive you,

and you may think it is a tumor of the kidney, or displacement of the kidney. A movable kidney would not deceive you, however. Its main diagnostic point is in its slipping under pressure.

Tumors of the kidney enlarge from the posterior wall, press forward and seem to carry the peritoneum with them, and the large bowel is also pushed forward, causing resonance on percussion. The location of the renal tumor may be immediately under the rib, but there will be resonance on percussion from the gas in the ascending colon. On the other hand, with distended gall bladder, there is dullness on percussion downward continuous with the liver as far as the tumor extends. Ricketts, of Cincinnati, had a case in which he opened a gall bladder which contained a gallon of fluid. I did not see the report, but he assured me the tumor was of immense size. It is common to find several ounces of fluid. With a three-inch abdominal incision, it can be palpated down to the lower end of the cystic duct by a short finger. If the obstruction is due to a stone, and it is found in the cystic duct, the patient can generally be relieved.

Patients with biliary obstruction have a temperature of 101° F., or more, but no history of a chill; at least, it is not a rule to have one. The pulse will be from 100 to 110; no vomiting, and no special trouble with the bowels, which would be the case in appendicitis. The distension is an empyema, and is not often a collection of bile. There will be much pain, and the patient will say she feels a tumor below the ribs. Then you have a case presenting the ordinary characteristic symptoms of distended gall bladder. There may be a gall-stone history, but that is not important. Cholæmia and jaundice are results of obstruction of the common duct. There may be some jaundice from other causes. Cholæmia and jaundice are due to the obstruction of the common duct in nine out of ten cases. Not ordinary jaundice due to duodenitis, but that due to obstruction from stones. A tumor in this location might be a movable kidney, or might be an enlarged kidney due to hydronephrosis, and if you operate and simply find a movable kidney, you would feel much embarrassed. You cut down outside the rectus muscle, just below the tenth rib; three inches down will give you all the room you want for surgery of gall-bladder. If the tumor comes down to the level of the umbilicus, you may make an incision as low as it extends. After cutting down and finding the gall-bladder really enlarged, you

should, with the finger, make a diagnosis of the presence or absence of stone. If the cystic duct is obstructed, you can ascertain this fact by palpation. The tumor is first aspirated, then incised, the stone or stones removed, and then the empty gall-bladder is sutured into the wound. Drainage is always used, and we prefer a rubber tube for that purpose. You cannot follow the hepatic and common duct to the duodenum. The omentum, duodenum and other viscera may prevent this. The common duct is behind the head of the pancreas, duodenum and omentum, under the lower border of the liver.

Many think it is easy to probe through the cystic duct into the common duct. When the duct is large and distended, it can be done, but, if adhesions have formed, and you will generally find adhesions in liver surgery, whatever the disease, they will displace the viscera and greatly add to the difficulties already existing. If the duct is dilated, it is possible to go through the cystic duct into the common duct and get the stone, but when not dilated and enlarged, it is difficult, if not impossible, to do so. This little cystic duct is one and a half inches long, as a rule, not very small, but the uterine sound could pass through easily. It is not over one eighth of an inch in diameter. As soon as diagnosis is made, you can use a probe or trocar (such as I here show you), or you can suture the gall-bladder to the peritoneum, or to the skin or muscle.

If a stone is in the cystic duct, its removal is an operation of great delicacy. There is a very thin peritoneal cover over the duct, and the duct itself is delicate, and any extraordinary force would produce rupture or laceration. So, with the finger in the abdomen, over the duct, on the stone, with ordinary forceps you gradually crush or otherwise move it. Mr. Tait has a special forceps for that purpose, called the alligator forceps, which I here show you. Be patient, and work slowly, for it is better to be slow and sure than too quick and tear the wall of the cystic duct, which is difficult to repair. One thing may be done in an accident of this kind, and that is to put in drainage and gauze packing, and try to get all of the bile out of the peritoneal cavity. The removal of stones from the bladder itself is a simple operation.

Removal of a stone from the biliary passage is called *Cholecystotomy*.

If we attempt to remove a stone from the common duct, it is an operation not only full of difficulty, but it is a dangerous and

delicate operation. The gall-bladder is easy of access, but the common duct is hard to sound or palpate, but a large stone may usually be located. One thing may be done, and that is to give easy exit for the bile from the gall-bladder, or from the cystic duct, if dilated, into the bowel. Such an operation is called *cholecystenterostomy*. It means simply the juncture of two peritoneal surfaces—that over the bowel and that over the gall-bladder—facilitated by the Murphy button. The two surfaces are placed between the spring of the button, which gradually works through the bowels, leaving a permanent orifice where the button was located. It is commonly used between the stomach and the intestine, or between two intestinal surfaces, but today we will speak of its use between the gall-bladder and intestine. Take one-half of the button and place it in the gall-bladder and the other half in the intestine; a suture will hold them in place; then join them, and the bile escapes into the intestine. The patient will probably improve, but in this operation we must not forget the stone in the common duct is the source of danger. Patients should be operated upon before there is much bile-poisoning. Treves, of London, has had a recent case, in which the patient had been sick for sixteen years with cholæmia. He found that the common duct was very short and ended in a blind pouch. The patient was temporarily relieved by operation. The mental condition of all patients is bad. The toxic effect of the bile upon the brain and nervous system is as marked as that upon the general health of the patient. Many cases of cholæmia are due to stone in the common duct, and to begin an operation under such circumstances is a most formidable undertaking.

I cannot show you about these operations as much as I would like to do so. You may see the Murphy button applied, if you have never seen it, and get an idea of how it is placed. There is little difficulty if the gall-bladder is not contracted. The button is more difficult of application in contracted than in good-sized gall-bladders. We do not often find stones in both ducts. One may be removed, the other possibly cannot be, and then it is difficult to find an easy way out of the operation. The finger guides the forceps to its location, and it is done by touch and not by sight. The forceps may be padded and the stone crushed *in situ* without opening the duct. You will find several devices have been invented which may be used to facilitate closure of the duct

in this operation. Halstead has one; a thin rubber bag, similar to that used in intestinal surgery, only of small size. Instead of the Murphy button, the inflated rubber bag is used, and the intestine put upon it and sutured over it. So in the common duct, after the stone is removed this little rubber tube has been inserted in the gall-bladder and sutured over it, after extraction of the stone. When the operation of closure of the duct is nearly completed the bag is allowed to collapse, and is then removed and a suture used to close the small orifice. This is hard to do, as it is difficult to hold the viscera out of the way. The intestines try to fill up the little space. If you undertake this, you will find this little inflatable tube of Halstead's of great assistance. If you do cut down for stone in the common duct and do not suture, you will have leakage of bile, and in many cases peritonitis and death. Dr. Davis, of Birmingham, Ala., says in these cases bile may be removed by capillary attraction, by gauze packing.

In operations including choelithotomy, etc., if the gall ducts are injured during operation, posterior drainage may be made so as to carry off the bile that it may not be allowed to get down into the peritoneal cavity, but personally I object to the practice. Any infectious fluid carried off, and patients will sometimes recover. Bile is not primarily or necessarily an infectious fluid. Many pints of it have been found in the peritoneal cavity, after injury to bile ducts, and yet the patients recovered.

Many speak about gall-stones who give you the idea that all persons with gall-stones require surgery. That is hardly true, for many of us may have gall-stones and never know it, and so you will have patients who will have gall-stones, and not be aware of it, because they rarely give pain except in transit.

There is one other method of getting a stone from the common duct, and McBurney, of New York, has performed such an operation successfully, and it will sometimes prove the easiest method of reaching the stone.

The method is to open the duodenum and find the opening of the common duct with a probe; sound for the stone, and then if possible remove it, and close the incision in the bowel.

Incision of the bile ducts is called choledochotomy, and was first described and successfully practiced by Courvoisier in 1890. Although practiced by Greig Smith in 1889, he was not the first to tell about it.

If time would permit, I should like to tell you of cholecystectomy, or removal of the gall-bladder. As a receptacle or reservoir of bile, the gall-bladder is quite unnecessary, and its removal does no harm. It is quite as useless as the appendix, and appears to provide a source of trouble and danger to many. The operation is not very dangerous, and was popularized by the famous Langenbuch. In three cases I have removed the gall-bladder, and have obliterated and closed the lumen in others. In all cases the patients gave no sign of any discomfort from such surgery, and they all recovered.—*Virginia Medical Semi-Monthly*, March 24, 1899.

Washington, D. C.

## CASES.

### EXTRA-UTERINE PREGNANCY.

Dr. Marcus Rosenwasser, professor of Diseases of Women in the Cleveland College of Physicians and Surgeons, and Gynecologist to the Cleveland General and City Hospitals, Cleveland, reports the following cases, which are of much interest because of the care and accuracy of the reports:

CASE I.—Referred by Dr. I. Friedman. Mrs. A. F., age 38, three children; last four years old. Last regular menses three months ago. Missed following period. Began flowing four weeks ago and has continued more or less since. Three weeks ago was taken suddenly with cramps and sharp pain in the lower abdomen and fainted. Within the past week has had another similar attack. Each attack was followed by distension of the abdomen and rise of pulse from 80 to 110 to 120. She has passed no shreds and has had no labor-like pains. Under anæsthesia, two weeks ago, a sausage-shaped, hard, tender, movable body was found in the upper part of the pelvis in front of the uterus. The latter was two and one-half inches deep.

*Diagnosis.*—The diagnosis lay between tubal pregnancy and dermoid cyst. Patient would not consent to operation until after the second recent attack.

*Operation.*—April 6, 1899. Present: Drs. Friedman, Pipes, N. S. Scott, A. C. Knestrick, Creston, O., and senior class. Ether. Incision four inches. Dark, fluid blood free in abdomen. Omentum attached below. Pelvis filled with blood clots, and enlarged right tube. Peritoneum highly injected. Tube and ovary removed. Tube sausage-shaped, abdominal end much hypertrophied, with blood clots projecting from opening. Longitudinal section of the tube discloses within the distended ampullar portion an apoplectic ovum containing a partly organized blood clot. The fetal membranes are firmly attached near the uterine pole of the tube. Tubal wall unruptured. Case evidently one of *tubal abortion*.

CASE II.—Referred by Dr. W. A. Ward, Conneaut, O. Mrs. H. S. B., age 34. Two children; last twelve years old. Subject to "womb trouble" since first child. Regular menstrual flow December 20, 1898. Missed in January. On February 2, had "just a show," which continued for two weeks. At this time was seized with sudden, sharp, steady, intense pain in right abdomen which kept her in bed for three days. The following three days she was up and about. She was again taken with a similar attack, followed by swelling of the abdomen. Since then has never been without pain for twenty-four hours. There has been no vomiting, or faintness, or other symptoms of pregnancy. She had felt labor-like pains only on two occasions. There has been a constant bloody vaginal discharge during the past two months, increased at time of regular menses a week ago.

Seen in consultation at her home, April 8th. Patient quite anemic. Pulse 100, temperature 100° F. Abdomen irregularly enlarged. In right hypogastrium a hard mass reaching to umbilicus and extending from right ilium to median line. The tumor outline now drops to a lower level and extends partly into left pelvis. Beyond the tumor the descending colon is distended and the contour visible. Bloody discharge from the vagina; perineum lacerated; cervix soft, lacerated, pushed up against symphysis and pointing forward. Behind the cervix the vaginal vault is convex, tense, fluctuating, as is also the mass to the right and above, though less distinctly. The mass as a whole is immovable, not tender. Patient was brought to the hospital April 17th. The mass had increased toward the left since last examination.

*Diagnosis.*—Extra-uterine pregnancy with circumscribed hem-

orrhage and recurrence of bleeding. Drs. W. H. Humiston and George W. Grile concurred in the diagnosis.

*Operation.*—April 20, 1899. Present: Drs. Ward, Conneaut; Davidson, North Amherst; Humiston and Crile. Ether. Trendelenburg. Incision to umbilicus. Bluish tumor with seromuscular wall presenting; attached posteriorly and partly laterally; free above and in front. Incision of tumor. Wall of sac half an inch thick, firm, not friable. Evacuate two or three pints of black and clotted blood. Tumor contains but one cavity. Uterus not enlarged, lies in anterior and left lateral position. Appendages not accessible without breaking down adhesions, which are not disturbed. Edges of sac stitched to edges of peritoneum. Sac cavity drained.

CASE III.—Referred by Dr. A. Steiner. Mrs. J. C. S., age 38. Two children; youngest 16 years. Subject to pelvic inflammation past few years. Menses irregular, scant, five to seven weeks, lasting three days. Last menses, December 8, 1898. Throughout the following month patient suffered sharp pain, mostly in the right abdomen. Began flowing January 29, continuing with frequent sharp cramps until February 7. While out visiting that day, was taken with "very intense pain as if all the insides were being torn out." When she reached home, she had another attack. Early in the evening of the following day she had a third attack, followed by collapse. At this time her attendant was first called. She was seen by me in consultation the same evening. The diagnosis of ruptured tubal pregnancy was made.

The patient being in profound collapse, and in the absence of her husband, it was deemed inadvisable to operate at once. The next morning Dr. H. F. Biggar, her former physician, saw her with us. An acute peritonitis had developed. She remained in collapse three days; the pulse part of the time imperceptible, and again ranging from 140 to 160. She then gradually rallied and was left in the care of her attendant.

The objective symptoms at the time of rupture were: marked anemia; distended abdomen; small, rapid, at times imperceptible pulse; temperature 100° to 101° F.; tender vaginal formix, but no mass. Dr. Steiner reports that on the first examination after the patient had rallied (about three weeks after rupture), there was quite a mass in the pelvis, which in the course of six to seven weeks had been reduced to the size of a hen's egg. The tempera-



ture and pulse had become normal and the appetite good. About three weeks ago the patient had a severe tonsillitis, followed by the appearance of her menses, and from that time she had been growing steadily worse. The temperature did not go back to normal but gradually rose; the pulse likewise. She had night sweats and finally a distinct chill; there was a constant ache and pain in the pelvis. When seen in consultation April 22, there was a tender, hard mass, filling the right pelvis and reaching above the brim from the iliac fossa to median line.

*Diagnosis.*—Ruptured tubal pregnancy, circumscribed hemorrhage with suppuration of the blood mass. During the week's delay occasioned by the request for additional counsel, the patient had another chill, the temperature rose to  $102^{\circ}$  to  $103^{\circ}$ , and the pulse to 108 to 120. Vaginal section had been contemplated, but was abandoned at the last moment, as more hazardous in this case than laparotomy.

*Operation.*—April 29, 1889. Present: Drs. Steiner, Biggar, and Lowman. Ether. Trendelenburg. Incision four and one-half inches. Intestinal adhesions to tumor, which afterward was found to consist of the left tube, together with the uterus. After walling off upper abdominal contents, and while releasing an adherent coil of intestine, notice first a fecal odor and immediately after the flow of chocolate colored pus, oozing through the roof of the broken sac. Remove from the sac cavity half a pint of pus and broken down, decomposing blood clot. Flush cavity and pelvis. Adhesions too numerous and patient too weak to attempt extirpation of sac. Drain the sac cavity with rubber tubing surrounded with gauze. Pack gauze in all directions to wall off abdominal contents from the open sac cavity, the edges of which are too friable to hold a stitch. Patient leaves the table without shock. The gauze packing was not removed until two weeks after operation.

CASE IV.—Referred by Dr. A. C. Knestrick, Creston, O. Mrs. C. K., age 25. Two children; last four years old. Menses regular, seven days, free. Last regular menses, January 21. Was four days late in February and only was unwell two days, scant. Four or five days later began flowing again and continued more or less for two weeks. Nine weeks ago she suddenly took "awful sick," had sharp pain in the abdomen and fainted. The pain was felt mostly in the right side. Again she flowed slightly

for two weeks, when she had a second attack, not quite as severe as the first, the pain having more of a "bearing down" character. She had been flowing since, the discharge varying from scant to free, with clots and shreds, occasionally watery. She has had a constant dull pain in the abdomen, often making her vomit two or more times a day. There has been considerable rectal and some vesical tenesmus. No chills and but slight fever. On examination the uterus is quite low, the cervix pointing toward the symphysis. Behind and above the uterus, there is an irregular mass of varying consistency. In the right vaginal vault there is a convex, tender mass, hard yet resilient, which can be best palpated in the right iliac fossa.

*Diagnosis.*—Ruptured tubal pregnancy, circumscribed hemorrhage, with growth of tumor. Dr. N. S. Everhard, Wadsworth, O., and attending physician, both concurred in the diagnosis.

*Operation.*—May 3, 1899. Present: Dr. A. C. Knestrick, Creston, O. Ether. Trendelenburg. Incision four and one-half inches. Intestinal adhesions to sac released, exposing tumor in the middle of the pelvis. Uterus to the right. Oozing of dark blood from the sac at points of adhesion. Open sac, containing a three months' fetus, placenta, and a pint or more fluid blood. After removal of the placenta, there is a free hemorrhage from the place of attachment and from the sac wall, not controlled until after ligature of the right ovarian artery. Sac thoroughly adherent. Stitch edges of the sac to peritoneum and drain.

Convalescence in all these cases has been smooth and without incident.—*Bulletin of the Cleveland General Hospital.*

## AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

THE American Association of Obstetricians and Gynecologists will hold its twelfth annual meeting in the assembly room of the Denison House, Indianapolis, Ind., Tuesday, Wednesday and Thursday, September 19, 20 and 21, 1899. The association will meet in executive session with closed doors on Tuesday, September 19th, at 9.30 A. M. The open session will begin at 10 o'clock; afternoon session at 3 o'clock; evening session at 7.30 o'clock.

The morning session Wednesday at 10 o'clock; afternoon session at 3 o'clock. The morning session Thursday at 9.30 o'clock, to continue until 1 o'clock P. M. The afternoon session at 3 o'clock, and at 5 o'clock the closing ceremonies will be held. At 7.30 o'clock P. M., Wednesday, the annual dinner will be served at the Denison House.

The following papers are promised:

- The President's Address.....Edward J. Ill, Newark  
 "Three Rare Cases of Kidney Cyst"...J. F. Baldwin, Columbus  
 "Post-partum Repair of Lacerations of the Cervix Uteri"...  
 Clinton Cushing, Washington  
 "The Gonorrhœal Puerperium"....Charles G. Cumston, Boston  
 Paper.....Rufus B. Hall, Cincinnati  
 "Injury to Ureter in Abdominal Section".....  
 L. H. Dunning, Indianapolis  
 Paper.....J. B. Murphy, Chicago  
 "Coccygeal Dermatoïd Fistulæ"....Robert Morris, New York  
 "Choice of Method for Total Hysterectomy and Some Points  
 of Technique".....B. Sherwood-Dunn, Boston  
 "Present Position of Gall-Stone Surgery, with Report of  
 Cases".....William Wotkyns Seymour, Troy  
 Paper.....John B. Deaver, Philadelphia  
 "What Shall We Do With the Post-Operative Hemorrhage  
 of Celiotomy?".....D. Tod Gilliam, Columbus  
 Paper.....M. Rosenwasser, Cleveland  
 "Choice of Operative Method from a Mortality Point of  
 View".....Joseph Price, Philadelphia  
 "Shall We Operate During the Viability of the Fetus When  
 At or Near Term?".....L. H. Dunning, Indianapolis  
 "The Deleterious Influence of Tea and Coffee in a Certain  
 Class of Gynecological Cases"....Walter B. Chase, Brooklyn  
 "One Form of Ovarian Disease Not Generally Recognized"  
 W. H. Humiston, Cleveland  
 "Personal Experience with Uterine Fibroids".....  
 Henry D. Ingraham, Buffalo  
 "Midsummer Operations".....Joseph Price, Philadelphia  
 "Observations Respecting the Symptoms and Treatment of  
 the Menopause".....Augustus P. Clarke, Cambridge  
 "A Simple, Effective and Esthetic Operation for Shortening  
 the Round Ligaments".....H. W. Longyear, Detroit  
 "Some Observations, Chiefly Clinical, Upon the Tempera-  
 ture After Intraperitoneal Operations".....  
 L. S. McMurtry, Louisville  
 "Rupture of the Puerperal Uterus, with Cases".....  
 James F. W. Ross, Toronto

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### CONGENITAL DISLOCATION OF THE HIP IN CHILDREN.\*

ALEX C. WIENER, M.D.

Professor of Orthopedic Surgery, Chicago Clinical School.

IN reviewing the advancement made in late years in the treatment of congenital dislocations of the hip, we find the surgeons divided into two factions; one advocating the bloodless forcible reduction or, rather, circumduction of the head after the Paci-Lorenz method in all children up to six years of age; the other vigorously denouncing the fallacy of the cures thus obtained and demanding the unconditional open reduction of the hip after Poggi-Hoffa. The sea of printer's ink used in defending each position would drown the non-suspecting practitioner attempting to reach the safe shore of certainty, and he really may spend his valuable time to better advantage than by burying himself in the special study of a deformity which occurs once in about ten thousand surgical cases.

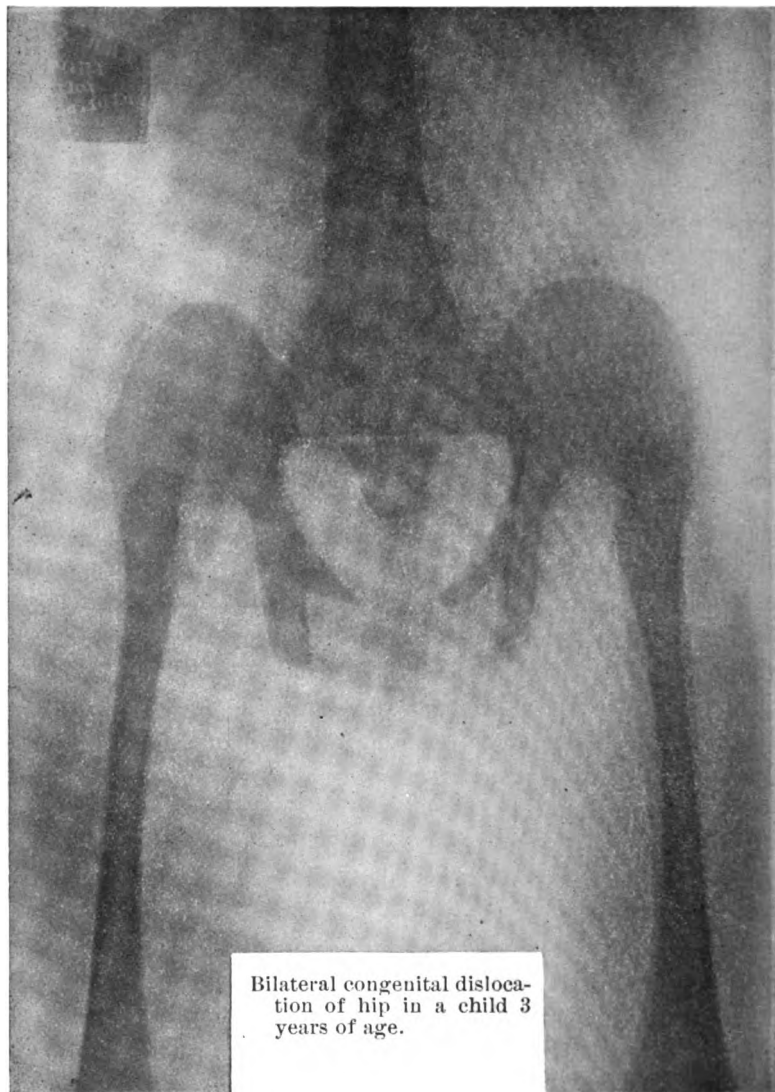
It therefore does not seem inappropriate to offer a dispassionate résumé of the matter as it stands today, choosing as a guiding star the etiology of the affection, the variance of which is great and has been altogether too little valued in its paramount importance in selecting the proper way of curative proceeding.

It is practical to divide all congenital dislocations of the hip into three different classes:

1. Congenital dislocations of the hip caused by retarded devel-

\*Read by title before the Illinois State Medical Society at Cairo, Ill.

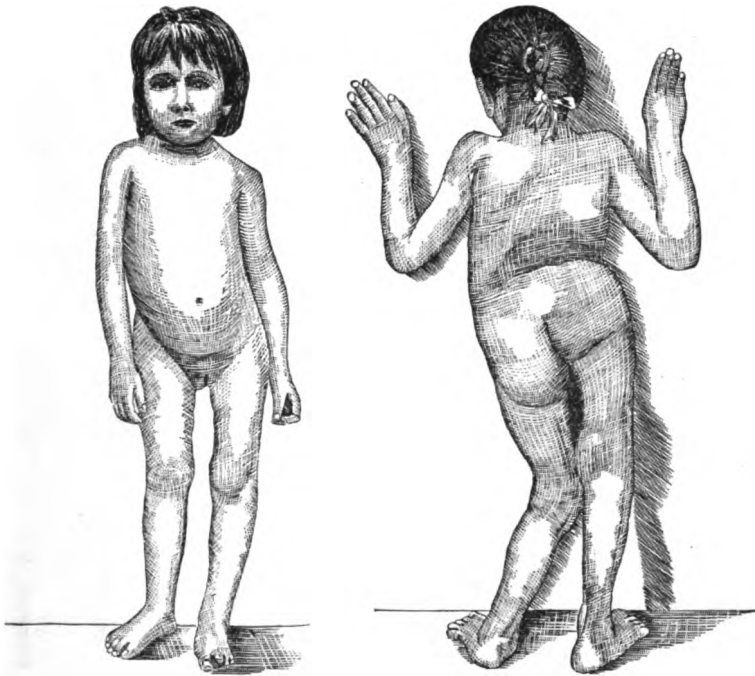
opment of the acetabulum. As you know, the acetabulum is formed by the os ischii, the ileum and os pubis, which, being cartilaginous at the end of the second month, inclose a central, dense-



cellular blastema at the base of the acetabulum, where the bones meet in the well known Y-shaped figure. When this blastema is retarded in its normal growth, the acetabulum remains so small

as hardly to allow the tip of the index finger to enter. The retardation of the development is confined mostly to the skeleton of the pelvis and lower extremities and is associated with other monstrosities—rachischisis, fissure of the abdomen and bladder and exstrophy of the intestines, or a large sacrolumbar myelomeningocele.

In rare cases the retarded development of the acetabulum is the only malformation. The head of the femur, continuing to grow,

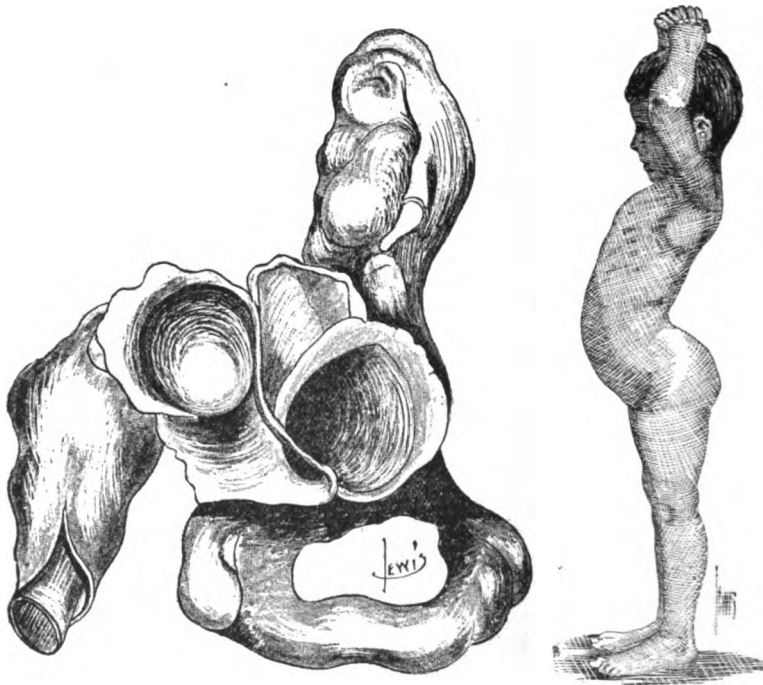


Congenital dislocation of right hip. (Lorenz.)

is naturally forced out of the socket. These are the only cases of this class which later come under the care of the surgeon.

2. The second division embraces all the cases in which the dislocation has occurred in the latter period of fetal life and the acetabulum has ceased growing from disuse. The dislocation at this stage may be produced by injury or disease of the joint, intra-uterine rachitis, or by hereditary influences—the same causes to which we ascribe the deformities of the other parts of the extremities.

3. The third class is not strictly congenital, the dislocation occurring during the expulsion of the fetus from the uterus. Phelps saw a child one hour after it was born. The right limb was an inch shorter than the left and there was a dislocation on the dorsum of the ileum. He manipulated the limb according to the usual method and reduced the dislocation, the head remaining in place without a retaining apparatus. If the deformity had not been noticed until after the child began to walk, any physician would have pronounced it a case of true congenital dislocation.



Showing heart-shaped acetabulum, drawn out ligamentum teres. The front part of capsule which is stretched over the socket like a sail spread, is removed. (Hoffa.)

Congenital dislocation of both hips, showing compensatory lordosis of the lumbar spine.

How different must the result be in attempting to forcibly reduce a case of the first division and a case of group three! Here, success at once; there, complete failure! The case 5 of group 1, true peromelia, are extremely rare, not one of them being represented in the collection of the Warren Museum. (Bradford.) The bulk of the cases we have to deal with belong to the second division.

Now this group, in itself, comprises cases of great variety as to

the size of the acetabulum, the malformation of the head and the size of the cotyloid ligament, according to the time of the fetal life at which the head of the femur was dislocated by an injury, or in consequence of a disease. The later in months, the better proportioned in size do we find the head and the acetabulum. The inequality of the cases subjected to forcible manipulation explains why one surgeon warmly advocates the procedure, while the other has not words enough with which to denounce it, the latter simply having met an acetabulum too small for retaining the head of the femur.

The Roentgen Rays represent the best means of ascertaining whether the head really is resting in the socket after the operation, and above all, whether it is retained there in the future, for it has been the experience of most operators that the successful replacing of the head into the socket does not at the same time guarantee a retention. As a rule, we have to be satisfied with a transposition of the head from the posterior to the anterior aspect of the cotyloid wall. The shortening being materially lessened thereby, the head finds a fixed rest between the tough ileofemoral ligament and the lower anterior spinous process.

The demands to be met in examining a hip applying for the high degree permanent cure are the following:

1. The tip of the great trochanter must be felt at least near the Nelaton line minus its conspicuous lateral prominence.
2. The pit found in the region of the inguinal portion of the femoral artery has to be filled in by the reduced head.
3. The head, on repeated upward strokes, must find a steady support on a fixed abutment.
4. When dislocated anew on manipulation, it has to snap in at exactly the same spot with a perceptible concussion.

The diagnosis of the deformity seems to be simple enough, yet there are some indications that the practitioner does not fully understand how to arrive at a correct diagnosis of it. The vast majority of congenital dislocations of the hip are of the posterior iliac type. The principal symptoms, of course, are lameness and a shortening of the diseased leg, but those symptoms are shared with other affections of the hip, tuberculosis of the joint or paralysis of the muscles. *Yet there is one symptom* set apart for the dislocation of the hip exclusively, which is a never failing guide: Place your patient in a side position. On inspecting the parts,



you find the buttocks flattened and the trochanter projecting. *The patient is able to move the leg in all directions but one,—the vertical.*

The gait in the bilateral dislocation is very characteristic and has often been compared to the waddling of a duck. **Froriep** has explained this symptom by the vertical gliding of the femurs when alternately charged with the weight of the body. This erroneous theory is contained in most text-books. However, **Trendelenburg** has proven that the change of the fibers of the **musculus gluteus medius** and **minimus** from a vertical position, in which they act as the abductors of the pelvis, to a more oblique or even horizontal direction, and the shortening and consequent atrophy of these muscles cause the pelvis to tilt to the side of the resting leg in walking.

The bloodless operation consists in first bringing the dislocated head down to the level with the socket, under deep **anæsthesia**, and forcing it into the cavity. Every group of resisting muscles is conquered by lever action.

**Lorenz** describes in quite a dramatic manner the joy of the operator when the head, with an audible and perceptible snap, passes over the posterior wall of the acetabulum. The success, besides, is indicated by considerable pain and swelling about the hip joint, elevation of temperature and sometimes profuse **diarrhœa** or even collapse. The leg is then held in extreme abduction and in a strongly inverted position by means of a plaster-of-Paris dressing, including the abdomen and the femur, in which the child is allowed to walk after the first week, thus utilizing the weight of his own body in developing the acetabulum, by the constant pressure on the head of the femur. With each following dressing the abduction of the femur is diminished, while the inversion is rigidly maintained. After a few months the plaster-of-Paris dressing is replaced by **Schede's** abduction splint, which, being easily removed, facilitates the employment of massage, active and passive motions, and cold baths, the value of which for the final outcome cannot be overestimated.

The Roentgen Ray has mercilessly destroyed the illusion of curative success based upon this fine physiological reasoning. We now fully acknowledge that a cure is an exception. A mere change of the position of the head, improving the functional and cosmetic conditions, is regarded as a happy outcome.

Considering the fact that the first operation in strong, muscular children often fails and that repeated tractions have to be applied under deep narcosis, with all the dangers imminent to chloroform and ether, I believe the open reduction will be more generally adopted in the future; more especially as the traction is by no means a harmless proceeding. Eleven fractures occurred in four hundred tractions made by Schede and a tearing of the abductor muscles in one case, complicated by a fissure of the wall of the femoral vein. Overstretching the ligaments, which results in a temporary loosening of the knee joint, besides paresis and paralysis of a sometimes quite serious character, may be produced. Large extravasations of blood in the neighborhood of the hip joint, acting as foreign bodies, may produce reactive inflammation and abscess, thus forcing the surgeon to follow his manipulation by a serious and extensive operation, leaving deeply retracted scars.

A splendid illustration of the comparative merits of both procedures is given by Bradford in a paper read before the American Orthopædic Society at Boston. The case being so instructive, I will give it in his own language: "A child three years of age affected with a double dislocation of the hip. Reduction by forcible correction was easily made and fixed with a plaster-of-Paris dressing. Relapse one month afterward. The right hip was therefore cut down upon. The ring of the cotyloid ligament was found to be too small for the entrance of the head, being not more than a quarter of an inch in diameter. This was dilated, the head passed through, the wound stitched, and the patient recovered. Death after three months from whooping cough. At the autopsy it was seen that in the hip which had been reduced by forcible manipulation, the condition was not that of an ordinary untreated congenital dislocation. The head of the femur was placed near the normal condition. A complete correction, however, had not taken place and the cotyloid ligament was between the head of the femur and the acetabulum. This was not the case with the hip, which had been cut down upon and treated by open incision, where reduction was complete."

It is quite true that the incision includes the danger of infection. The laws of asepsis are to be rigidly carried out, else ankylosis will result. The mode of procedure is as follows:

The bladder and bowels must be well emptied. After the patient has been carefully cleansed by bath, the field of operation is

thoroughly scrubbed with soap and sterilized water, while the anesthetic is administered. The soap is washed off with absolute alcohol. No antiseptic of any kind is allowed. The incision is made according to the position of the head; it is V-shaped with the angle reaching one inch below the trochanter major, not so much care being taken as to type as to gain space and comfortable access. The tensor vaginæ femoris being the main obstacle to achieve, this end is cut transversely. The sciatic nerve is then a reliable guide. After a thorough investigation of the anatomical relations of the different parts, the thickened (5-6 m.m.) capsule is freely resected in front. Then the acetabulum, which is filled with cartilaginous and fibrous masses, is scooped out so far as to hold the head of the femur comfortably. The osseous tissue thus removed almost equals in mass that of the head of the femur. Mechanical traction applied directly to the head will greatly facilitate the reduction. Some surgeons jam in a slice of capsular tissue between head and acetabulum, as a preventive of ankylosis. For the same reason, tamponade should not be used, as it produces too much exudation, which may lead to agglutination between the articular surfaces. The wound is then stitched together loosely, so as to allow free drainage, and is covered with sterile gauze. The further treatment does not materially differ from Lorenz' method. I soak the plaster-of-Paris bandages in a 5 per cent sterile glue solution, which assures a greater elasticity after dressing. A good protection against urine is secured by covering the outside with a layer of celluloid solution. After healing of the wound, in about four weeks, the patient is made to walk, the abduction and the inversion being rigidly maintained.

The rare cases described by Phelps and Ridlon, where the dislocation had taken place toward the pubic bone, I cannot help, at least from what I have seen, but consider as the results of traumatism in the first months of life.

#### CONCLUSIONS.

*First.* Forceful reduction after Paci-Lorenz in congenital dislocations of the hip should be attempted in all cases where the shadowgraph shows a good sized acetabulum, in children not over six years of age.

*Second.* This treatment seldom achieves a cure; it only affords a functional and cosmetic improvement.

*Third.* Statistics of cures previous to the Roentgen era have no practical value.

*Fourth.* Whenever manipulations are of no avail, operative reduction should at once be resorted to.

*Fifth.* The earlier the diagnosis of the deformity is made, the better will be the ultimate results, which are, as yet, far from being ideal with either method.

*Sixth.* The coöperation of the profession is therefore essential in minimizing the surgeon's failures.

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## MEMBRANOUS TONSILITIS AND PHARYNGITIS OF INFLUENZA.

ROSA ENGELMANN, B.A., M.D.

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EARLY in 1898, because of negative or perplexing findings in cases of supposed diphtheria, I said: "Much yet remains to be learned in regard to the genesis of throat lesions and their associated complications." Further, "I no longer believe that certain definite symptoms pertain absolutely to a Löffler, a streptococcic or staphylococcic infection because: 1, of the possibly polymorphic character of the Klebs-Löffler germ, and 2, because a pure form of the one or the other infection or disease so seldom exists.

This winter's brilliant work of Chicago's Health Department, laboratory and clinical staff, has substantiated this premise and enriched nosology by a *membranous* amygdo-pharyngitis of influenza. Catarrhal infection of the naso-pharynx in grippe is common; but, in looking through the entire literature of the subject, including Leichtenstern's comprehensive monograph, I can find but few or conflicting statements as to a membranous faucial involvement.

In this connection Seiler says: "We never see any pseudo-mem-

branes on the surface of the mucous membranes." But referring to American grippe he inconsistently states: "On inspection, the mucous membrane of the throat here and there presents pseudo-membranes adhering tightly to the surface. This membrane differs from the pseudo-membrane of croup and diphtheria in color, being of a bluish white hue and giving the impression to the eye of opalescence. It never curls up at the edges, etc."

Pfeifer's pseudo-influenza bacillus, with identical morphologic and tinctorial, but cultural characteristics dissimilar to the true Canon-Pfeifer germ, may account for the above cited discrepancies.

Pfeifer himself cultivated the pseudo-influenza bacillus from broncho-pneumonic sections in three children succumbing to diphtheria. He warns us of the likenesses of this germ to, and its differences from, the true germ of grippe. Finkler refers to the appearance of the throat in this disease (influenza) as follows: "In the pharynx the swelling may reach such an extent that we are reminded of a beginning diphtheria; the tonsils stand out prominently and the uvula is displaced. Now and then a distinct follicular inflammation of the tonsils arises."

S. S. Bishop, in an article upon tonsilitis of influenza, very recently writes of "A case in which a noteworthy incident was that although the right side of the throat was not complained of, the left was very sore and painful during the act of swallowing; thirty-six hours after the first symptom of the attack the right tonsil was a mass of ulcers."

The ubiquitous grippe germ thus seems to appear in an entirely new rôle, as does also the bacillus lanceolatis or pneumococcus, the latter, as well as the former, having become proven etiologic agents of membranous throat lesions. Their association also determines pathologic properties in the ordinarily innocuous faucial lodgment of the bacillus lanceolatis, producing a secondary pulmonary complication. Angina erythematosa of grippe is mentioned by Stinzing, Anton, Schultz, Preston, Bristowe and others in 60 per cent, 29 per cent, 30 per cent, 33 per cent and 30 per cent of grippe cases respectively. Lowenstein likewise reports hemorrhagic angina.

In a January, 1899, editorial of *The Journal*, Dr. Frank Reilly announces "That the bacterial diagnosis of influenza will be only less necessary than that of diphtheria and may be followed by as satisfactory results."

Dr. Weincoup, not alone settled this question affirmatively, but augmented our knowledge as to a differential diagnosis from diphtheria and other anginas and directed attention to new and valuable clinical data. In a preliminary report of the health department bulletin, Dr. Weincoup states that "In several instances the bacillus of diphtheria and the bacillus of influenza were associated, and that the clinical symptoms usually supported the bacteriologic findings. This was true also with several other disorders. It would seem that a bacteriologic diagnosis in influenza is of special advantage in detecting this disease when complicating other diseases. The bacilli were not only found present in cases of diphtheria, but also in cases of scarlet fever, measles and pneumonia. In all of these conditions it was noticed that there were clinical manifestations which were difficult to interpret until the microscopic examination was made.

In the diagnosis of suspected diphtheria during the past two months some interesting observations were made relative to obscure clinical symptoms of influenza. In cases which appeared on the onset to be diphtheria the presence of the Canon-Pfeiffer bacillus was demonstrated, and the subsequent course of the disease confirmed the microscopic diagnosis of influenza. In many of these cases the throat symptoms were so marked—redness and swelling of the tonsils and a well-developed membrane—that a physician would not hesitate to pronounce the case diphtheria, yet influenza bacilli were often found in these cases in a condition almost pure." Cases with little throat disturbance, but with temperature, bodily aching, and general depression, were on the other hand found to be mild diphtheria, although the clinical symptoms pointed strongly to influenza. In cases apparently of tonsilitis the influenza organism was found and in other cases, which were clinically severe laryngitis, these bacilli alone were present in these expectorations. In these atypical manifestations of influenza very few of the general symptoms of the disorder were noticed, and the diagnosis, subsequently confirmed by the course of the disease, was made solely from a bacteriologic finding."

My observations do not concur as to the absence of the ordinary symptoms of influenza; for in many of my cases with a membranous angina, the complications and sequelæ were classical. In one case referred to me by Dr. Frank Cary, in which only the lan-

ceolates and grippe germs obtained, despite a follicular tonsilitis, all the symptoms were typically grippal.

In other instances the microscopic and clinical pictures coincided. The two germs, the Canon-Pfeifer and the bacillus lanceolatis, as excitors of a throat malady, add new and perspicuous factors to the differential diagnosis of heretofore obscure pharyngeal and laryngeal affections.

Fränkel reports a case of grippe in which the middle portion of the vocal cords was generally reddened and of dirty white color. He regarded this as characteristic of a fibrinous infiltration of the cords.

Leichtenstern describes a case of mild influenza with absence of coryza, tracheitis, etc., that upon the third day was suddenly seized with edema of the glottis requiring immediate tracheotomy.

Influenza was unquestionably epidemic. Its germ was being daily demonstrated in sputa and nasal secretions and finally, to our surprise, in tonsillar, palatal and pharyngeal membrane cultures. A startling corroboration of the manifold and remarkable manifestations of this disease. Membranous tonsillitis of bacteriologically demonstrated influenzal origin is of such scientific and practical import that I direct the attention of this section to the matter.

Being called upon by other practitioners to make cultural and microscopical examinations for lacunar and membranous amygdalitis and pharyngitis of a purely diphtheritic, mixed and influenzal type, I was astonished to find many slides show almost pure cultures of the lanceolates and grippe organisms, either alone or associated with the anticipated Klebs-Löffler germ. In one case at the eighth hour growth I found an almost pure culture of the diphtheria bacillus that at the twenty-fourth hour both Dr. Weincoup and myself found had been superceded and overgrown by the bacillus lanceolatis. This led to some difference of opinion as to the diagnosis until the doctor examined my eight-hour slide. Dr. Goodkind and I agreed as to the clinical picture of a septic diphtheria involving the tonsils, palate, uvula and post-pharyngeal wall. Antitoxin was administered with decidedly favorable reaction. The necessity of both early and late examinations of cultures is here emphasized in order to accurately determine and harmonize the various and contemporaneous infections. Very pertinently the same physician reports cœval influenza and scarlet fever in a child bacterially and clinically proven. In fact, the mi-

microscopic examination was used only for a verification of the clinical diagnosis. We were now constantly on the lookout for this ubiquitous Canon-Pfeifer germ and demonstrated its appearance in a number of cases.

The histories of the two following cases (the latter Dr. Good-king's) are illustrative and interesting. Mary M., slightly indisposed for two weeks with cough, coryza, languor, etc. These symptoms became aggravated by muscular and neuralgic pains, general hyperesthesia, temperature  $102.6^{\circ}$ . No dysphagia nor enlargement of the tonsils that were, however, covered with dirty gray adherent patches, so like diphtheria that I was deceived, until the culture demonstrated the grippe microbe only. The throat cleared up upon an iron and bichloride mixture, and the temperature had fallen to  $99^{\circ}$  upon the third day of the illness. The patient seemed comfortable when to quote her, "I was awakened at 4 A. M. with a severe pain in my ear and a constant noise like the striking of a hammer. I was extremely nervous and unable to lie down or stay in one place. I could not sleep and was all the time having queer things run through my mind, stories and fancies that were never finished." In fact, she was delirious. The temperature rose to  $104^{\circ}$  F. A rapidly progressive otitis media and mastoiditis undoubtedly existed. I called Dr. Morgenthau in council. A paracentesis of the ear drum was done that sounded like the bursting of a vesicle. There was a hemorrhagic discharge that Dr. Morgenthau considered pathognomic of grippe. After ten days' use of the ice bag, low diet, drainage, etc. (the discharge had become sero-purulent) she was pronounced well, although deafness, great emaciation and mental depression persisted for five weeks. The tenacity of this microbe, hence danger of the recurrence of this infection, is exemplified in her case; for six weeks later she is suffering from another attack of grippe.

Mrs. K., 41 years old, suffering from exophthalmic goitre that resisted all treatment (including thyroid extract and electricity) except strychnine and rest. Was doing well; pulse fallen from  $160^{\circ}$  F. to almost normal, with disappearance of almost all morbid symptoms. Grippe prevailed in the family.

She was suddenly seized with rigors, muscular and neuralgic pains; the temperature rose to  $105^{\circ}$  F.; the pulse to 160 beats per minute. The tonsils, palate and uvula were covered with an opalescent membrane. The grippe organism was demonstrated and



none other. She was treated for grippe and recovered from it. But as sequela there was a recurrence of all the exophthalmic symptoms in a most aggravated form. At the present writing she is again in good form for her.

Chicago, Ill.

## PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, June 13, 1899.

THE PRESIDENT, DR. EDWIN E. GRAHAM, IN THE CHAIR.

DR. L. C. PETER presented a boy nine years of age, of marked nervous temperament, and a neurotic family history, who acquired the habit of rumination when seven years old. At first the food returned only upon voluntary effort, but at the time of his appearance at the hospital the food regurgitated without effort on the boy's part. He rechewed and swallowed it for several minutes after eating or until the presence of free hydrochloric acid rendered the food sour. Recovery followed tonic, sedative and suggestive treatment.

Conclusions:

(1) Rumination in children is a stomach neurosis associated with idiocy, or, as in adults, with a profoundly neurasthenic condition.

(2) It is under the control of the will.

(3) Prognosis, except in idiocy, is good.

Dr. Peter also presented a boy of seven years suffering from muscular-pseudo-hypertrophy. The muscles of the thighs and calves were much enlarged, as were also the supra and spinati. Some of the shoulder group, arm and forearm muscles, were atrophied. His gait was waddling, and his manner of rising from the floor when placed upon his back was characteristically "climbing up his own legs." The case was the only one which had occurred in the family.

DR. ALBERT WOLDERT, by invitation, presented a case of URTICARIA PIGMENTOSA, following chicken-pox. The patient was a boy 11 months of age, born of English parents. When three

months of age the patient had a well marked case of varicella lasting about two weeks. At that time the disease was prevalent in the immediate neighborhood. One week after the rash of chicken-pox had disappeared the mother observed some reddish blotches or wheels on the anterior surface of the chest. Four days later a similar circumscribed area appeared on the abdomen, three days later upon the thighs, and finally, upon the anterior surfaces of both legs. Within three or four days after its occurrence upon the legs, spots were found on the back of the neck, and later upon the entire dorsal region of chest and thighs.

In all the involved areas after the rash had existed for about one week the color changed to a light brownish, salmon, or fawn color, and after a period of eight months may be observed at this time. The eruption may be described as existing in the form of maculopapules, which are both discrete and confluent. Itching is not a marked symptom in this case.

DRS. J. C. GITTINGS and C. F. JUDSON presented a paper on PNEUMONIA IN CHILDREN.

#### DISCUSSION.

DR. NEWCOMET.—I wish to ask the authors whether they do not think that alveolar catarrh may be the cause of many cases of asthma that begin in early life and persist without any recognizable cause. I have in mind two cases that have had, since very early life, an asthmatic bronchitis, and since they are not subjects of heart disease and there is no other evident explanation for the condition, it occurred to me that it might be the result of an alveolar catarrh that had never quite cleared up.

DR. GITTINGS, closing the discussion.—The points which struck us most forcibly in the attempt to make a diagnosis between broncho-pneumonia and alveolar catarrh were as follows: The absence of any of the infectious diseases as an immediate predisposing cause; the absence of general bronchitis either before or during the attack; the distinct tendency to localization, the lesion remaining only in the area originally attacked; the subacute or chronic course without any of the severe acute symptoms which we are accustomed to expect in broncho-pneumonia; and finally, the tendency to recovery.

DR. CHARLES F. STRETCH reported a case of SCURVY in a child of 13 months that had good hygienic surroundings. The family

history was good on both sides. The child had had cholera infantum last summer, but made a perfect recovery.

At birth the child was placed on condensed milk, given as frequently as the child desired. During the fourth month on this mixture vomiting and purging occurred and the child was placed on Mellen's food for the next five months. Vomiting and purging then appeared again, and Horlick's malted milk was used and agreed for three months, when slight vomiting and purging resulted. At this time the first symptoms of the present disease appeared, consisting in profuse sweating, soon followed by soreness and swelling of the left leg, which was quite painful on flexion and extension. The child also gave a cry of pain when any portion of the body was touched. In a short time pain on passive motion appeared in the right leg. The child was now brought to the Surgical Department of the Children's Hospital, where the leg was put in continuous extension. This treatment was kept up for two weeks without improvement, when it became evident that the child was not suffering from hip disease. The child was now referred to the medical side, and Dr. Griffith diagnosed it infantile scurvy. There was enlargement of the costochondral articulations, and distinct enlargement of the epiphyses at the wrist joints. There was no spinal curvature or curvature of any of the long bones, no muscular rigidity and no bleeding of the gums. In the past three days distinct petechiæ had developed over the instep of both feet just above the toes.

The treatment consisted in small amounts of beef juice, orange juice and milk and water, 1-3. Ten days later the condition of the child was much improved. He was still sweating continually and had some fever at night, and the stools had contained curds, but the ecchymoses were fast disappearing. The pain was less and the legs seemed much more movable. Nine days later the pain had entirely disappeared from the legs, but he did not use them much. The bowels had now become constipated. Four days later the child continued to improve. There was no return of the petechiæ; the legs were freely movable and pain was entirely absent.

#### DISCUSSION.

DR. JOPSON.—I saw this child when it was first brought to the hospital. It was brought to the surgical dispensary with the idea that it had sustained an injury, there being a history of a fall a

day or two before. There was slight rigidity of the left hip and apparent pain on motion, and no other local or general symptoms at that time. I made a diagnosis of hip disease, which was a tentative one, and the only one I could make at that examination, and immobilized the hip by means of a pasteboard splint. It was apparent after ten days that something else was the cause of the trouble, and at this time attention was directed to the opposite leg, which now seemed to be the seat of the pain and tenderness. There were also a few petechiæ on the foot. The idea of scurvy then occurred to me and I asked Dr. Griffith to see the case, and he concurred in the diagnosis. I think the case illustrates the multiformity of symptoms which infantile scurvy may present, and the necessity of being on the alert in cases of this nature. I know of one case in which the child had a swelling on the tibia which was diagnosed as osteo-sarcoma and amputation advised. The parents of the child brought it to Philadelphia and put it under the care of a doctor who diagnosed it as scurvy. Under anti-scorbutic treatment the child recovered and the extremity was saved. I do not see how the diagnosis of scurvy could have been made at first in this case on account of the localization of the pain without the involvement of other joints, and the absence of other stigmata of scurvy.

DR. ALLEN.—Dr. Griffith knows that I have had some experience with scorbutus in my own family. My eight-months-old baby was carefully fed on dried extract of malt with cream, milk and lime-water. I had raised one baby on that mixture with no ill effects. The baby had a great deal of pain on movement of the legs. Small doses of salicylate were given, but he seemed to get worse. Subsequently I noticed hemorrhage from the gums. Dr. Griffith diagnosed it a case of scurvy. The diet was changed and in two or three days the pain disappeared. The child made a rapid recovery.

DR. J. P. CROZER GRIFFITH.—There are several interesting points which this case calls up. Although the scurvy has completely disappeared, the child still has sweating, and apparently fever at night. This indicates clearly the distinction between scurvy and rickets. There are many who consider them intimately connected, and who apply the name "scurvy-rickets" to the disease as seen in infants. After a careful study of the published reports of over 300 cases, my own conclusions clearly are that they

are entirely different affections. Statistics clearly show many cases of scurvy devoid of any symptoms of rickets. Since both are probably dietetic diseases, there would seem to be no good reason why they should not both occur in the same case.

Another interesting point is that there was no affection whatever of the gums in the case of the child reported. This is so commonly viewed as an almost necessary symptom that numerous mistakes in diagnosis occur as a result of its absence or late development. The statistics of the American Pediatric Society prove that a very large number of cases begin with an affection of the lower extremities, producing a very characteristic condition of affairs, yet with no alteration of the gums. I have been particularly impressed by the painful pseudo-paralysis which cases of scurvy exhibit. In two cases seen within a month of each other during the past winter, the most striking feature was the way in which the legs hung helpless, almost like a child with poliomyelitis, yet with the added symptom of pain on the least attempt to handle them. One case appeared to be the exact duplicate of the other. In each case the physician in attendance had suspected the presence of rheumatism. In each, however, the gums were decidedly involved, and the diagnosis was easy. In the case reported tonight there was no involvement of the gums, yet the condition of the legs was characteristic.

The italicised statement is made in Dr. Bailou's recent article on Scurvy in the Supplement to the Cyclopædia of the Diseases of Children, that when the teeth have not appeared there is no characteristic affection of the gums. There are undoubted exceptions to this rule, as the investigations of the American Pediatric Society show.

DR. TELLER.—I think that scurvy depends upon the low percentage of proteids. I know a child that was raised on a modified milk from the Walker-Gordon laboratory, in which the percentage of proteids was very low, this being necessitated by the condition of the gastro-intestinal tract. Scurvy developed in that child. The milk was Pasteurized and of course prepared with the care always used in the laboratory. In another case which I reported to the Pediatric Section, A. M. A., the condition was brought about by one of the dried foods, malted milk. A physician diagnosed it rickets, with spinal curvature, and the child was put on whole milk with some added cream. Intestinal and gastric symp-

toms appeared, and the child was placed under my care. A diagnosis of scurvy was made. I ordered modified milk and the child got well. I think there are cases that develop when the children are getting a low percentage of proteids and are not dependent necessarily on sterilization; nor are the dried foods responsible, as Dr. Allen seems to think from the observation of his case.

DR. T. H. P. TWADDELL reported a case of HENOCHE'S PURPURA in a child six years of age.

Family History: There was tuberculosis on the father's side and a brother is now ill with phthisis. The child has had measles and pertussis.

On the night of May 27th she was given a bath under the hydrant. On the following afternoon she complained of pain in the ankles, the muscles of the calf, the knees, the quadriceps muscle and the tendons of the popliteal space. She began to vomit on the 29th and had vomited ever since. Examination of the heart disclosed a faint systolic murmur at the pulmonary cartilage. Liver and spleen not enlarged. The abdomen was not distended, but was tender on pressure. From the knees to the feet there was a profuse purpura-like eruption, with slight œdema along the tibia, but more marked in the flexure of the knee.

May 31st it was reported that she had had fever the previous evening. She had had three stools the day previous. There was no blood in them, but several ounces of blood were seen that morning in the stools, which were accompanied by pain and tenesmus. She had continued to vomit. The abdominal tenderness was more marked right in the iliac fossæ. Spleen not noticeably enlarged. She had blood in the stools until June 2nd. On the 3rd there was no blood or mucus. She complained of pain in the right knee and was unable to walk. Her appetite was good. She had no fever and no blood came from the bowel. The purpuric spots had disappeared.

The diagnosis was based on the occurrence in a young child of hemorrhage into the subcutaneous tissues and from the bowel, associated with abdominal pain, vomiting, diarrhœa and pains in the joints.

#### DISCUSSION.

DR. J. P. CROZER GRIFFITH.—I asked Dr. Twaddell to report this case because it illustrates the well known way in which forms of purpura shade into each other. This case is one in which one

hesitates whether or not to make a diagnosis of Henoch's purpura. The question was whether the discharge of blood from the bowel was accidental or not, and whether we had to deal with an instance of purpura rheumatica merely. A careful study of the case makes me regard it as a mild case of Henoch's purpura.

DR. ALLEN.—I saw a case two or three years ago where there was hemorrhage from the bowel under the skin from nose, mouth and bladder, as well as uncontrollable vomiting. The child was about 11 or 12 years of age, with an exceedingly bad tubercular family history. Since that time a sister has died of tuberculosis. The question of diagnosis at that time was between typhoid fever and purpura on account of the gastro-intestinal symptoms. The abdomen was scaphoid and the temperature was never high. The case ran a course of about eleven days, the child finally dying from exhaustion from profuse hemorrhages. There was always some uncertainty in my mind as to whether I had a case of Henoch's purpura, or one of typhoid fever with hemorrhagic tendency. I did not try the Widal test, and have always been sorry that I did not get the child to the hospital, where more could have been learned of the condition.

## REVIEW OF PEDIATRY.

### ERYTHEMA SCARLATINOIDES.

Dr. J. Travis Taylor reported to the Richmond Academy of Medicine and Surgery, in April, 1899, the following case of what he terms Erythema Scarlatinoides.

CASE.—W. K., aged 14. He first came under my observation in the fall of 1897, when he was suffering with intermittent fever. Quinine was exhibited in two-grain doses every four hours, and after several days fever was checked. He was instructed to continue the medicine three times a day for some days, and left the city to visit friends in the suburbs.

Two days after I was called to see him at his home, and learned that the day before he had a chill, fever and eruption on his body. A physician had been called in, and suggesting that it was most

probably scarlatina, advised that he be returned to his home in the city, which had been done.

I found him with a temperature of 102° F., a diffuse eruption over his whole body, extremities and face, a furred tongue, which was reddened on the edges, very slight sore throat, but saying he felt first-rate but for the itching and stinging of the eruption.

A diagnosis of probable scarlatina was made, but the constitutional symptoms were so slight, and the patient being constipated, I simply ordered a dose of calomel, soda and ipecac, to be followed by Epsom salts in the morning. In the meanwhile strict isolation was enjoined.

The next day the fever had disappeared, and the only symptom of importance was the eruption. The nurse was instructed to bathe the child with a weak solution of bicarbonate of soda in water, which was done, and the day subsequent, or fourth day of disease, the desquamation began. This was the most marked that I have ever seen. Large flakes were cast from the body and limbs. with almost perfect casts of the soles and the palms.

Then a diagnosis was made of erythema scarlatinoides, probably due to malarial infection.

I next saw this patient in the autumn of 1898, when he had another attack almost entirely similar, though none of the symptoms were so marked. On investigation it was found that quinine had been administered by the child's mother just previous to this attack, and the thought was suggested that this might be the cause of the eruption. It was determined to use the same treatment in this attack as before, and then to experiment with the quinine.

The result of the treatment was excellent, and after an interval of one month quinine was again exhibited in three-grain doses three times a day. After the use of this remedy for three or four days the eruption again appeared, and followed an exactly similar course as in the former attacks, with the exception that the throat symptoms were wanting, and the eruption did not affect the face at all.—(*Bi-Monthly Bulletin*, Richmond, June, 1899.)

#### KERNIG'S SIGN OF MENINGITIS.

Much is being said and written this year in regard to this newly discovered or emphasized symptom. Its value lies in its easy and simple demonstration and constant presence. Of it Osler says: "This interesting sign, first described by a Russian physician,



has been present in all our cases in which it has been looked for. It is an old observation that in protracted meningitis the patients lie with the thighs flexed upon the abdomen and the legs partly flexed upon the thighs. To test for Kernig's sign the patient should be propped up in bed in the sitting position, then, on attempting to extend the leg on the thigh there is contraction of the flexors, which prevents the full straightening of the leg. On the other hand, in the recumbent position the leg can be fully extended. Many patients with meningitis cannot sit up, but the test can be equally well applied by flexing the thigh on the abdomen, when, on attempting to extend the leg, if meningitis be present, the limb cannot be fully extended. Fricis found the sign in fifty-three out of sixty cases, and Netter in forty-five out of fifty. Its presence is no indication of the intensity of the spinal involvement. Netter's explanation of the phenomenon is as follows: In consequence of the inflammation of the meninges, the roots of the nerves become irritable, and the flexion of the thighs upon the pelvis when the patient is in the sitting posture elongates, and consequently stretches the lumbar and sacral roots, and thus increases their irritability. The attempt to extend the knees is insufficient to provoke a reflex contraction of the flexors while the patient lies on his back, with the thighs extended upon the pelvis, but it does so when he assumes a sitting position."—(*The Canada Lancet*, July, 1899.)

## BOOK REVIEWS.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Tenth session, held in Cincinnati, June 1, 2 and 3, 1898. Edited by FLOYD M. CRANDALL, M.D. Reprinted from the Archives of Pediatrics, 1898.

This volume contains many valuable papers read at the last meeting of the society, among which we may note as of special value and interest: The Scope and Limitations of Hospitals for Infants, by L. Emmett Holt; Collective Investigations of Infantile Scurvy in North America; Irrigation by Submersion in the Treatment of Empyema, by Samuel S. Adams; Urine of Healthy Infants and Children, by Frank S. Churchill; The Exanthem of German Measles, by F. Forchheimer; Heatstroke in Infants, by

Irving M. Snow; *Classification of the Anæmias of Infancy*, by John Lovett Morse. A new feature of this volume is the index of Vols. 1—X, which makes at once available a large amount of very excellent pediatric material.

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**FORTY-SEVENTH ANNUAL REPORT OF THE NEW YORK JUVENILE ASYLUM FOR THE YEAR 1898.** Charles E. Bruce, M.D., Superintendent, 176th Street and Amsterdam Avenue, New York City.

Besides being in itself an exceedingly valuable record of the efforts of the Empire State to care for its infant and child wards, this report contains also a supplementary one prepared by Dr. Ales Hrdlicka. This contains Anthropological Investigations of 1,000 white and colored children of both sexes in this institution, with additional notes on 100 colored children in another. These measurements and records of practically healthy children are of value to all pediatricists as a foundation for judgment as to deviations from the normal in diseased children. To be sure in some cases allowance must be made for the class of society from which most of them come. There are a number of good illustrations showing anomalies in the shape of head, growth of hair, ears, jaws, teeth and toes, together with several charts.

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**GOLDEN RULES OF SURGICAL PRACTICE.** By E. HURRY FENWICK, F.R.C.S. *Golden Rules of Gynecology*, by S. Jervais Aarons, M.D. *Golden Rules of Obstetric Practice*, by W. E. Fothergill, M.A., M.D. *Golden Rules of Medical Practice*, by Arthur Henry Evans, M.D., F.R.C.S. Published by John Wright & Co. Bristol, England. Price, 1 shilling each.

These are exceedingly practical and sensible little books, intended primarily for the advanced student or young practitioner, but of much value to all medical men. The authors are themselves men of large experience, but they base their "rules" on the best available authority and back them by their own experience. Their vest pocket size, neat appearance in white binding, and low price, commend them to us all. If as Americans we do not accept and adopt all of the suggestions, there will still be plenty left to make them of value to each of us.

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**THE BERTILLON CLASSIFICATION OF CAUSES OF DEATH.**—Opinions of health officers, registrars, sanitarians, pathologists, and physicians generally are desired as to the nature of the changes to be made in the revision of the Bertillon classification of causes of death. A pamphlet containing an account of the system, with

full information, will be sent free upon request of Dr. Cressy L. Wilbur, Lansing, Mich., who is Secretary of the U. S. Commission of Revision, working under the auspices of the American Public Health Association.

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**VITAL SCIENCE BASED UPON LIFE'S GREAT LAW, THE ANALOGUE OF GRAVITATION.** By ROBERT WALTER, M.D. Published by J. B. Lippincott Company, Philadelphia. 1899.

Starting with the thought that "the living world is a fundamental department of natural existence," whatever that means, the author has set himself to discover the fundamental law which rules this department. While accepting much of the teachings of the modern evolutionists he does not hesitate to disagree at many points, and maintains his positions with much skill in the use of words.

We find it difficult to place the medical teachings of the book. The rest cure is exalted, unduly so it seems to us. For while we believe in the great recuperative power of the body, we can not yet entirely abandon as useless all stimulants and tonics, medicinal or mechanical, nor do we believe that disease is a normal process of nature.

The physician who seeks for the causes of health and disease by reasoning rather than with the microscope will find much to interest and guide him in this book. There is an exhaustive table of contents giving the topics of each of the 234 paragraphs.

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**IN QUEST OF LIFE.** By THAD W. WILLIAMS, M.D. Published by F. Tennyson Neely, London and New York.

The author, puzzled by the length of the lives of the ancient patriarchs, has sought to bring out in the form of a romance his ideas of possible explanation. With the wisdom of the Egyptians and the superstition of the Aztecs, he has combined the more modern hypnotism. The value of the book lies in the descriptions of Egyptian and Aztec life. The story is improbable whether viewed from a medical or a non-professional standpoint. But if you wish to know more of Egyptian life, ancient and modern, of the tenets and practices of the Aztec religion, of the possible limits of hypnotic power, of the conceivable results of the use of animal extracts or of grafted organs, an hour or two will be easily and well spent in reading this volume.

# ANNALS OF GYNECOLOGY AND PEDIATRY

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## ORIGINAL COMMUNICATIONS

### THE CONDITIONS UNDER WHICH WE ARE TO SELECT THE VAGINAL ROUTE IN PREFERENCE TO ABDOMINAL SECTION.

JOHN SPRECHT, M.D.

OPERATING through the vaginal wall in properly selected cases is a surgical procedure that befits him best who has good judgment and has had experience in dealing with wrong pelvic conditions. It requires good judgment to know how to select your cases for this procedure, for not all cases of apparently the same disease are suitable for vaginal section. It requires experience and long practice in bimanual examinations before you can know what to do and what not to do. For instance, Dr. F. Henrotin, of Chicago, advocates the following plan in acute pelvic infection: "The patient who is suffering from an acute recent infection in its earliest stages, is treated by making a semi-circular incision posterior to the cervix, opening the peritoneum, after which the finger is introduced into the pelvis, and used in all further manipulations. With the finger the adherent inflammatory mass is reached, punctured, and explored."

I do not approve of this plan of Dr. Henrotin's in such early stages. It is dangerous to the patient; but being an expert in this direction he might do it with safety to the patient; but an in-

experienced man, for instance, attempting the explorations and manipulations with his finger, might carry the germs that have already been localized by nature, beyond the barrier of adhesions, and again introduce them into the free peritoneal cavity, there to produce probably a fatal septic peritonitis.

You do not see nor hear of so much vaginal section nowadays, because you do not see nor hear of so much vaginal hysterectomy, and why has the profession stopped doing vaginal hysterectomies? Because they are now busy doing conservative work on the uterus, tubes, and ovaries—myomectomy, salpingectomy, ovarian resections, etc., conserving the pelvic organs as much as possible by work through an abdominal incision, instead of the wholesale slaughtering of these organs through a vaginal incision, and rightfully, too. Conservatism is now our aim. But we will run across a class of cases that will tax our good judgment in deciding between conservatism on the one hand, and the best results for our patient on the other hand.

If I had a patient near or past the menopause, who was fleshy and had considerable thickness of fat over abdominal muscles, as women of that age usually have, and who had a prolapsed uterus that I had failed, or could not hope, to cure by a plastic perineal or vaginal operation, I would do a vaginal hysterectomy every time in preference to an abdominal hysterectomy, or ventrofixation. I would have better results than any treatment by abdominal incision. The operation would be easier, and there would be less shock and danger to the patient.

I would also do a vaginal hysterectomy every time in preference to an abdominal in a case of cancer of the cervix or body of the uterus, if I saw it in its early stages. And how can you see these cases in their early stages unless you use the microscope?

Every woman that is thirty years and past, who has borne a child, and especially if she has had a cervical tear, should be kept under close observation. If she has an erosion that does not respond readily to treatment, or you are suspicious that the cervix does not look perfectly sound, it is but little trouble to scrape off some of the endometrium or excise a small piece of the cervix and have a microscopical examination made. You might save many lives in two ways by doing so; first, cancer in its early stages being a local disease can, by this method, be early recognized and thus completely eradicated. Second, I am confident that with-

out the use of the microscope many uteri are removed on suspicion, and if the life is not lost, the woman has undergone a needless operation, at least.

I would make a vaginal incision in preference to an abdominal in dealing with some of the many pelvic adhesions. If there be tormina and bowel obstruction, showing that there are intestinal adhesions or strictures, and you can diagnose these adhesions as being low down in the pelvis, you can reach them better and deal with them more easily through a vaginal than an abdominal opening. Many pelvic adhesions can be loosened and treated without any cutting operation. By bimanual manipulations an adherent ovary can be loosened from the pelvic wall or even a kinked tube straightened out. This plan should be tried first before an operation is made. The patient is placed completely under chloroform or ether, and with one hand to make manipulations over the lax abdominal walls, and with the finger of the other hand in the vagina or rectum, many slight adhesions of the uterus, tube, ovary or intestines can be loosened. Failing by this method a semi-circular incision behind the cervix is made, and with your index finger or a pledget of gauze upon a pair of forceps (if your finger should not be long enough to reach the adhesions), you can gently loosen the adhesions from below upward. Dr. Ground, of Superior, reports some excellent results by this method.

I would make a vaginal incision in preference to an abdominal in treating every case of ruptured extra-uterine pregnancy (in the early stages), except those in which the hemorrhage is so severe as to endanger the life. These severe cases will be marked by pain, collapse, shock and anemia that is sudden and severe, and unless operated upon quickly through an abdominal incision and hemorrhage controlled, death will result in a few hours. But those cases of tubal rupture, or abortion, in which the hemorrhage is not so large, are suitable for treatment and drainage through a vaginal incision. The hemorrhage that is poured out into the pelvis in these cases does not remain long before it becomes septic and a source of irritation to the peritoneum. A few days only suffices for it to become a localized mass, fenced in by adhesions, and it can then be incised into with safety through the vaginal wall, and drained without any fear of general peritonitis, which you could not say if you attempted to enucleate and drain through an abdominal incision.

The last case that I operated upon through an abdominal incision was about two years ago, and I will never attempt any more by this method, unless the vaginal incision fails to cure. In this case the woman gave me a history of pain and tenderness over the left side of abdomen; she had fever for some six weeks previous to the time I saw her. I made a bimanual examination and found a hard mass on left side, but could not outline it very definitely on account of the tympanites and pain produced by my fingers. Being in doubt as to the true condition, I thought it best to make an abdominal incision. I found a large septic clot of blood on that side that extended up to the umbilicus; many coils of small intestine were embedded in the mass. After removing ruptured tube and ovary, and enucleating as much of the mass as possible from amongst the intestine, I put in an aluminum tube drain with gauze, which I left in for forty-eight hours. After taking out my drainage-tube I had a sinus that continued for nearly a year in spite of several curettements and faithful washing out with bichloride solutions. This sinus extended down amongst the small intestines and behind the uterus. I would wash it out with as strong a solution as possible, but I noticed that if I went beyond a certain strength, it would cause her to have severe colic and diarrhoea. After nearly a year's treatment and failure to close, I made a second abdominal operation on patient for the cure of the sinus. I cut around the sinus wall in abdominal muscles and followed it down amongst the intestines as far as possible. The sinus walls that I could not dissect off from intestines with the knife, I cauterized with thermo-cautery. I sewed up abdomen tight, as in aseptic operations, and was pleased to see wound unite and have no sinus. But the patient came to my office a few months after second operation, and showed me a ventral hernia that was giving her as much trouble as the sinus; and now the patient will be obliged to undergo a third abdominal operation before she is in a satisfactory condition.

I have recited this case to show you what trouble and consequences are apt to follow an abdominal operation for these cases, which I am confident can all be avoided by doing the easier, more simple, and less dangerous operation of vaginal incision with drainage. I would not have had the sinus because I would, by the vaginal incision, have had a more natural and a better drainage, and I certainly would not have had the ventral hernia. It

is surprising how little shock and disturbance follow the vaginal incision in the treatment of these cases. The few cases of extra-uterine pregnancy that I have treated in this way did nicely, and the sinus leading into the vagina closed up readily and without trouble, leaving, I have no doubt, a tube and ovary again ready to carry on their functions.

I would choose the vaginal incision every time in preference to the abdominal in dealing with pelvic infection, where pus accumulations have occurred low down in pelvis, and near wall of vagina. By making a vaginal incision in these pelvic abscesses you have an opening for drainage, which, from the point of gravity, is a great deal lower than any abdominal incision you can make, and you consequently get better drainage and also less shock and less danger of infecting the free peritoneal cavity above, because of less handling. Many of these cases are large monocystic accumulations bulging into the rectum and vagina, which by simply puncturing and washing out with a bichloride of mercury solution, rapidly drain off and close up without further trouble. All cases of this class that I have observed have occurred in women after an abortion or confinement in which the physician was careless, or the midwife ignorant, in regard to asepsis. In women, also, who by the use of catheters, sounds or other instruments introduced into the uterus to "bring themselves around," as they say. By this method many women no doubt introduce directly into the uterus and tubes and from there into the pelvic peritoneum, streptococci, colon bacilli or some other pus-producing germ of a virulent nature, which, if not quickly disposed of or localized by nature within twenty-four to forty-eight hours, will produce general septic peritonitis and death in many cases. In the majority of cases of pelvic infection, however, resolution takes place, or the pus accumulations become walled off by inflammatory adhesions, and a so-called pelvic abscess is formed, and, if not opened within a week or two, will point and rupture into the rectum, vagina or bladder. Rupture into the rectum is preceded for several days by mucous discharges from the rectum, and other symptoms of proctitis. When you see this you should lose no time and open into the abscess from the vagina as quickly as possible, but if it has already opened into the rectum and the opening should be higher up than any vaginal opening you can make, you should then also make a vaginal



opening. By so doing you will have better drainage and also aid in closure of the rectal opening. If you do not do this you will have a rectal sinus that is hard to cure. I have attempted to close up several such sinuses by enucleation through an abdominal incision, and found it almost impossible on account of position of the sac, it being low down in the pelvis, difficult both to see and reach. In some of these cases the infection coming from the tube may be poured out upon the ovary, and if there should have been a recent Graafian follicle rupture, the ovary itself may in this way become infected and a true ovarian abscess formed in the ovary. An ovary thus infected, on account of its peritoneal covering, will become quickly and densely adherent to all peritoneal surfaces which come in contact with it. In this condition and from its position you can see that vaginal incision and drainage is safe. No danger of infecting the peritoneum when incised properly. This also is conservative surgery of the ovary and the best way to deal with ovarian abscess. For we might, after drainage, be able to leave a small particle of non-infected ovarian tissue, which is important. The necessity of conserving as much as possible this organ I will mention in connection with what I have to say upon pyosalpinx.

In every case of pyosalpinx I would make a vaginal incision before I would attempt abdominal enucleation. But before I would make even a vaginal incision I would make trials of a still more conservative plan. We are doing more and more of conservative work on tubes and ovaries to-day, but still we have not seen the full extent of conservation on these organs. A woman has an old double pyosalpinx and is sterile. Is this an indication that tubes and ovary should be removed? I should say it is not. The tubes and ovary in woman are somewhat analogous to the epididymis and testis in man. Nearly all cases of pyosalpinx in woman are of gonorrhoeal origin, as are nearly all cases of epididymitis in man. The majority of men who have epididymitis are sterile as far as the side affected is concerned, but since they are not conscious of it, it causes them no worry. Should you tell them they were sterile, they would have melancholia and a train of nervous symptoms as in women. They feel of the enlarged and indurated epididymis and are anxious, and ask you to do something for it. Would you advise castration? Certainly not. Why do you not hear of as many

testicles removed as ovaries, from the invasion of these gonococci? There is about as much damage done to one sex as to the other. The ovary is just as essential to woman as a testicle is to man. Neither should be removed unless affected by malignant diseases or completely destroyed. The ovaries, like the testis and thyroid gland, are secretive glands that contain and secrete spermin, which is an oxydizing agent that plays an important part in the animal economy. Therefore in secreting this oxidizing agent they are necessary and have a certain function to perform, and it has been noted that when one ovary is removed the other enlarges and doubles its capacity, so as to do more work. Therefore, when you have a case of single or double pyosalpinx try and do all conservative measures first, before you attempt abdominal incision and removal of these organs. In acute or chronic cases of pyosalpinx you have plenty of time to do conservative work; there is never any urgency or immediate danger.

I have tried the following conservative plan several years and with considerable success. If I have not produced a complete cure in some cases I have at least relieved the distended tube of its pus, and consequently the patient of her pains, due to distension. The early stage of pyosalpinx or salpingitis is hard to recognize because it follows immediately upon, or is associated in conjunction with, endometritis, the endometritis masking the symptoms of tubal disease. If we see salpingitis or pyosalpinx in the early stage we should treat the endometritis, the source of the trouble, and follow an expectant line of treatment, as far as tube is concerned, but later on, when the acute symptoms of endometritis begin to subside, and, on bimanual examination, we begin to recognize the enlarging tube, the following treatment should be tried: The patient or nurse is instructed to use several gallons of hot water by means of a fountain syringe. The more hot water, and as hot as you can use, and the longer time you can continue the flow against the affected side, so much the better. It softens the parts and drives the congestion and soreness away. The hard rubber nozzle of the syringe should be long, and pressed well up against the vaginal wall, and along the side of the uterus of the affected side. After several such thorough and prolonged hot water applications I have had patients report to me the escape of pus and a feeling of immediate relief after the pus came away. When the patient has used these prolonged injec-

tions without benefit, and on bimanual examination I still feel the distended tube, I give a prolonged vaginal douche myself and commence to make compressions or massage of the tube, expelling in this way all pus from the tube. If successful in this I continue the massage every four or five days until the patient is either cured or the tube fails to refill again. Not succeeding by these measures to effect a cure or empty the sac of its pus, I then make a vaginal incision into the distended tube and drain off all pus. This is a harmless operation in cases where the inflamed tube is adherent and close to the vaginal wall. After draining off a distended tube by vaginal incision I wash out with a solution of bichloride of mercury until the sinus heals and closes up. In some cases of pyosalpinx, where one or both pus-tubes lie high up in the pelvis, it will then be best to make an abdominal incision, and after loosening them up, shove them down into Douglas's cul-de-sac and drain into the vagina.

I would make a vaginal incision or puncture in preference to an abdominal incision in the treatment of abnormal Graafian follicle or corpus luteum cysts. Many of these enlarged cysts of the ovary can be ruptured and possibly cured without the patient undergoing any operation whatever, by simply making strong bimanual compression while the patient is under an anesthetic. If you cannot rupture these cysts of the ovary by this method, you should then thoroughly cleanse the vagina, and with one hand on abdomen, you press the cyst down upon the vaginal wall, and with a trocar and canula in the other hand you introduce it through the vaginal wall and into the cyst. Pulling out the trocar the canula drains off the cyst into the vagina. After all fluid is drained off, the canula is pulled out and the vagina lightly packed with iodoform or bichloride gauze. There is no danger or shock by this method if you are careful to sterilize the vagina, your hand, and the instrument. If you can make a positive diagnosis of these cysts of the ovary there would be no need of subjecting the patient to the severe operation of celiotomy.

West Superior, Wis.

## DERMOID CYSTS OF THE OVARY.

CRAWFORD E. FRITTS, M.D.

THE term "dermoid" is applied to new formations which contain the constituents of the integument in more or less completeness. They always appear as cysts which grow, in the ovary, to the size of a man's head. They are always simple, never proliferating cysts, but one ovary occasionally contains two dermoid cysts. As a rule dermoid cysts are found in one ovary only, but cases have been reported in which both organs were affected. The walls of the cysts are often thick, but sometimes very delicate. The inner surface is either quite smooth or it presents round spots of various sizes, which look like skin and project several millimeters above the surrounding parts. The entire inner surface is lined with several layers of epidermoidal cells, the upper ones flat and non-nucleated, the underlying ones round and nucleated.

The structure of the skin is distinctly shown only by the projecting portions of the wall. Here the epidermoidal cell layers are followed by a distinct corium. The corium often, though not always, contains papillæ, which, although sometimes in close opposition never present a regular arrangement, and vary greatly in length. The skin-like portions of the inner wall also contain a number of usually short hairs, which sprout from the surface. They present all the constituents of other hairs, are situated in hair follicles, and the latter are sometimes provided with sebaceous glands. Some of the sebaceous glands empty, contrary to the normal condition, immediately below the surface of the epidermis. Sweat glands are found less constantly than sebaceous glands. The dermoid cysts usually contain, in part, a thick, oily fluid, in part, a smeary mass like the vernix caseosa, consisting of yellow, soft fat, and epidermis cells. This mass contains more or less numerous matted hairs; a tolerably large knot of hairs is often situated in the middle of the fatty mass. Bones and teeth are among the less constant constituents of dermoid cysts. The bones are situated in the connective tissue layer of the wall, and

are covered internally by more or less developed tegumentary structures.

In rare cases several pieces of bone are connected by joint capsules and cartilaginous coverings of the joint ends. The teeth are situated in great part in the connective tissue wall, and in part project into the cavity. In rarer cases they are entirely enclosed in the wall. They are often situated in bony plates, which then contain alveoli. They sometimes possess all the elements of normal teeth; some are rudimentary, and in some the cement is absent. The fully developed teeth may be shaped distinctly like the incisors, canines, or molars, but the perfectly regular shape of the normal teeth is wanting, so it is usually evident that they were not derived from the mouth.

Wathen says no well-defined bone is ever developed in a dermoid growth, and those instances reported of the humerus or maxillary bone, etc., probably refer to cases of extra-uterine pregnancy, as do all cases where bones of the entire body are found. Among one hundred and twenty-nine cases collected by Lebert, teeth were present sixty-three times, but only forty-six times in two hundred and forty-five collected by Pauly. There are usually only one or a few teeth present, but larger numbers have been found. In a dermoid cyst in a girl of thirteen, Schnabel found in three bony plates more than one hundred teeth well developed with the exception of the roots. Such a large number of teeth can only be explained on the assumption that they continue to grow. That this really happens is proven by a preparation in Rokitansky's collection, in which a milk tooth was absorbed as far as the crown by another tooth growing beneath it. Nerve substance has been discovered in these cysts by Klebs, Virchow, Key, and Rokitansky.

There are several theories entertained concerning the origin of these peculiar structures. Some assume an inclusion of abnormal parts in the ovary during foetal life; others attribute them to an unusual formative tendency of the elements of the ovarian parenchyma. An old theory ascribed them to extra-uterine pregnancy, but it scarcely deserves mention, as they are often met with in children. D. Pozzi says that the theory of impaction, though not beyond criticism, is, on the whole, the most satisfactory. According to this view, during intra-uterine life certain portions of the blastoderm (the layer of cells which form

the germinative area) become impacted by pressure within the tissues, and, developing there later, give rise to an irregular formation of normal tissues. Cartledge says the origin of these peculiar formations unquestionably dates to embryonic life. If in the original arrangement and formation of the embryonic layers, the mesoblast, epiblast, and hypoblast (a small portion of the epiblast) are included in the mesoblastic structures, we have an explanation of the presence of these epiblastic formations. This explanation is further strengthened by the known fact that dermoid cysts are most usually found where fissures abound in the embryo, namely, about the upper portion of the face and head, and at the site of those intricate infoldings of epiblastic structures in the mesoblastic clefts which characterize the early embryonic changes of the ovary and testicle. Verneuil was the first to formulate this ingenious theory in regard to cysts of the branchial clefts of the neck and of the head. His demonstrations regarding the axis cord, from which he claims that the genital organs are developed, assist us in understanding the complexity of the elements found in the dermoid cysts of the ovary.

The organs which are formed by all the layers of the blastoderm are the only ones which take part in the formation of the axis cord. It is impossible, by dissection, to identify the different germinative layers. We can easily imagine, therefore, that portions of tissue corresponding to the corneous layer, the medullary tube, or the middle layer, muscle, and bone, may become misplaced in ovary as in testicle.

The theory of impaction received strong corroboration from these researches. Lannelongue adopts it unreservedly. He calls attention, moreover, to the fact that the development of these tissues, foreign to the parts in which they are situated, brings about certain modification in the structure of the latter, which adds to the complexity of the abnormal growth; still, Lannelongue does not entirely reject the idea of diplogenesi (the production of double monsters) in cases where foetal remains are found in cysts, which he terms foetal cysts. He considers them to be a combination of cysts and double monsters, the cause giving rise to the production of the monster being intimately associated with that which determines the formation of a cyst. One or the other may predominate, according to the case. The higher we go in the series, the more does the element of monstrosity pre-

dominate, and the more does the cystic element disappear. Thus, in the genesis of these tumors, there are two factors to be considered, the production of cystic cavities and the existence of a centre of supplementary development. To admit the existence of this independent centre is to satisfactorily account for the complex character of these neoplasms, but it must be confessed that the admission creates problems quite as difficult of solution as those which it destroys.

The history of the case of which I show the specimen is briefly as follows:

Frances B., aged eleven years, suddenly complained of severe pain in the right side. I was called to relieve her at midnight, October 28, 1897. The pain was most acutely felt directly over the McBurney point; examination revealed a tumor the size of a child's head at birth. Great pain and considerable distension of the abdominal walls. Temperature, 102.5. Hypodermatic syringe was used, and pus was withdrawn. Diagnosis, suppurating appendicitis. On the following morning preparations were rapidly made for an operation, and then another examination revealed the fact that the tumor had changed its location a little, and seemed nearer to the median line; hence this was the location selected for the incision.

On opening the abdomen it soon became evident that the trouble was not appendicitis, for on the presenting portion of the tumor and adherent to it was the healthiest appendix that I have ever had the pleasure to look upon. A great many adhesions were encountered, both omental and intestinal. Many of these were ligated before dividing them. Before removing the tumor some of its contents were removed by the aspirator, then it was withdrawn from the abdominal cavity and the pedicle ligated. On opening, the true nature of the cyst was revealed. The recovery of the little patient was rapid and uneventful. The suddenness of the pain, fever, and other symptoms in a patient who had never complained before, might be an excuse for the error in diagnosis.

In concluding, I would state that the general opinion of surgeons heretofore expressed, that an escape of any part of the contents of a dermoid cyst into the abdominal cavity at the time of an operation would necessarily be fatal, is probably not so in all cases. In the case I have just reported, this accident happened, but without any bad symptom or result.

Hudson, N. Y.

## SOME CAUSES OF MATERNAL DYSTOCIA.

R. E. CUTTS, M.D.

It is not the purpose of this paper to enumerate the classical causes of maternal dystocia, but rather to attempt to explain why one woman with an apparently large pelvis will require surgical relief at confinement, while another with the same pelvic measurements and an equally large child will need no assistance whatever. Under this class of cases come those so frequently met in which delivery is possible in the course of time, but which are apt to result so disastrously to the child, and injuriously to the mother. To recognize these cases in time, to give them the best treatment, requires a practical knowledge of scientific midwifery.

The physician is too apt to look upon all labors as normal and, when engaged beforehand to attend a woman at confinement, to think that his duties do not begin until labor actually commences, and then perchance he simply makes out the presenting part and the condition of the cervix. To be sure, labor is a physiological act, but our duties as physicians are to ascertain beforehand if there is anything obstructing or preventing this physiological act from taking place. Often this investigation is left until the forces bringing about labor are exhausted and delivery must be accomplished in an entirely artificial manner.

I mention this simply to condemn the practice of delays, for by delaying, conditions are brought about that limit our choice of operative relief, and both mother and child become greatly weakened.

Our medical schools, with their lengthened courses, are giving much clinical instruction in medicine, surgery, gynecology and ophthalmology, while in obstetrics a student may consider himself fortunate if he sees a confinement or is permitted to attend one by himself without any instruction. Every medical school should give as thorough clinical instruction in obstetrics as in any other branch of medicine, and every graduate should be able to palpate a foetus, to ascertain its position, presentation and relative size, as well as to do thorough pelvimetry.

With an accurate knowledge of foetus and pelvis in a given



case the physician is prepared to elect the line of treatment which will be best for mother and babe. Omitting the causes of marked pelvic dystocia as given in our text-books, such as justo-minor pelvis, flattened pelvis and Naegele pelvis, let us consider some other causes that are much more frequently responsible for difficult labor as met in every day practice.

*First cause:* The obliquity of the plane of the superior strait of the pelvis to the axis of the body. Every careful and observing obstetrician will notice that the plane of the superior strait in some pelves approaches more nearly a right angle to the axis of the body than in others. Other things being equal, a child could be delivered more easily through such a pelvis than through one in which the plane approached the axis of the body. The reason for this is readily seen, since the propelling force strikes the plane of the superior strait at an oblique angle, and consequently is not nearly so effective while the foetal head is driven against the pubes.

Through the kindness and assistance of Dr. C. A. Erdmann, I have been able to get the angle quite accurately in ten female pelves which he has in his laboratory at the State University. From these we find that the line joining the spine of the fourth lumbar vertebra and the superior margin of the pubes practically lies in the superior plane of the pelvis. Consequently we have points readily obtainable on the living subject, and all that is necessary to find the variation of this plane is to get the angle this line makes with the axis of the body.

There is no instrument that I know of for measuring this angle on the living subject aside from a rough device I have made that has permitted me to get the angle quite accurately. For the measurements in a few unselected cases I find this angle to vary from 45 to 66 degrees.

*Second cause:* Lordosis of lumbar vertebræ, and more particularly the undue prominence of the last lumbar vertebra.

The variation in the anterior curvature of the lumbar spine that one meets in investigating different specimens is remarkable. In fact no two are alike. From a normal anterior curve, which by the way is far from a fixed one, we find it varying to the excessive curve which constitutes a lordosis. Again we find instead of all the lumbar vertebræ participating in the curve, some one or two become unduly prominent. These are apt to be the fifth

lumbar or fourth and fifth lumbar, and are very marked factors in producing dystocia.

The dried specimen I have here shows this variation to some extent. In this condition we not only have more or less shortening of the true conjugate, but an interference of the foetal presenting part in engaging the superior strait, since the foetus is forced anteriorly and impinges against the pubes.

Again, according to the laws of mechanics we find the propelling force divided, and the effective element varies with the curvature and the angle of impaction, *i. e.*, of the head striking the pubes.

With these conditions of the lumbar vertebræ we find more or less rotation of the pelvis on its traverse axis—an important element in the cause of variation of the plane of the superior strait to the axis of the body.

Spondylolisthesis, which we will not consider in this paper, owing to its rarity, is probably brought about by an exaggerated prominence of the fifth lumbar vertebra, simply reaching the stage where the ligaments failing to do their duty, the vertebra slips down and anterior to the sacrum. While this condition rarely occurs, the anterior projection of the fifth lumbar vertebra may be found in the various stages approaching the characteristic dislocation of spondylolisthesis.

*Third cause:* Condition of the pubes.

First, as to obliquity of the plane of the pubes to the plane of the superior strait of the pelvis. Normally the pubes is placed at about a right angle to this plane, but from this position we may have either a tilting of the superior part of the pubes toward the sacrum, causing a true conjugate to be diminished and a consequently narrowed inlet, or the same condition of the inferior part of the pubes causing a diminution of the diameter of the inferior strait.

With the first, we find an interference with the presenting part engaging, but after having passed this point delivery is easy and rapid. With the latter the engagement may be easy and the presenting part reach a point near the vulva, but here it is held between the lower margin of the pubes and the sacrum, and unless the uterine contractions are especially strong, low or medium forceps will have to be done.

Other conditions of the pubes to be noted are its length and thickness.

The length of the pubes and sub-pubic ligament varies from one to three inches. With the long pubes the difficulty in delivery is encountered in the middle and lower part of the pelvic canal, and accompanied with the condition just mentioned, in which the lower part of the pubes is inclined toward the sacrum, may produce severe dystocia.

The thick pubes is more frequently found in women of stout build and having the evidence of a heavy skeleton. In connection with the thick pubes we may have a cartilaginous ridge over the symphysis as thick as a quarter of an inch, as seen in one of the specimens in the university laboratory. In doing pelvimetry these points must necessarily be considered, else an external conjugate measurement may be very misleading.

To summarize: Some common factors in producing dystocia are:

First. Obliquity of plane of superior strait of pelvis to axis of the body.

Second. Lordosis of lumbar vertebræ, and more especially the undue prominence of the last lumbar vertebra.

Third. Condition of the pubes.

A. Obliquity of the plane of the pubes to the plane of the superior strait of the pelvis.

B. Length of the pubes and sub-pubic ligament.

C. Thickness of the pubes.

The treatment of the conditions mentioned above, in which engagement of the presenting part is interfered with, should be, just as soon as the cervix is sufficiently dilated, version. If delay is practiced in these cases the membranes rupture, permitting the amniotic fluid to escape, the uterus soon contracts on the foetus so firmly that version is dangerous or impossible, and high forceps operation must be performed, which is always serious for the interests of the child.

I wish to report, briefly, two cases representing some of these conditions.

CASE I.—Mrs. P., American. Age 35. Family history negative. Early history negative. Had given birth to three children, all requiring forceps delivery, one of whom died during childbirth. Patient, a light blonde, of average height and a rather square build. Pelvimetry showed the external conjugate to be eight inches, and other measurements slightly above the average.

No external measurements would account for the previous dystocia. At this confinement, which was in 1895, the amniotic fluid began coming away a couple of days before any active signs of labor commenced, so that the uterus was firmly contracted on the foetus before the cervix began to dilate. The head could not be made to engage, and version could not safely be performed, so as soon as the cervix would permit, forceps were applied with much difficulty, and the babe finally delivered. When the head became sufficiently moulded to pass the superior strait no further difficulty was experienced.

The dystocia in this case was due to the marked anterior projection of the last lumbar vertebra, which not only shortened the true conjugate but crowded the head anteriorly against the pubes. This condition, together with a marked obliquity of the plane of the superior strait to the axis of the body, caused the foetal head to impinge almost squarely on the pubes, thus losing practically all of the propelling force.

Two years later I was called to attend the same woman at confinement.

She had been having slight pain for twelve hours, and finding the cervix dilated and an occipito-posterior position, with no attempt at engaging, I immediately summoned assistance, had chloroform administered, ruptured the membranes, did version and delivered with no difficulty whatever.

**CASE II.**—Mrs. K., patient of Dr. Erdmann. German. Age 30. Family history negative. Early history negative. Two previous confinements resulted in death of children. Both were long delayed, and the second was finally delivered with instruments, while the first was delivered by embryotomy after severe mutilation of the maternal soft parts through attempted forceps delivery.

In July, '96, I was called early one morning by Dr. Erdmann. The patient had been in labor three or four hours, and while contractions were strong the head would not engage, but in spite of all manipulation would ride out over the pubes. Chloroform was administered, version was performed with difficulty due to contraction of the uterus, the child delivered somewhat asphyxiated, but was soon resuscitated. In this case the body of the last lumbar vertebra projected so far anteriorly that it felt like a tumor, and it was with great difficulty that the hand could be

passed above it and curved back toward the hepatic region of the abdomen to reach the foetal foot. Eighteen months later Dr. Erdmann and I again attended the same patient at confinement. Contractions set in hard, the cervix soon softened, but the head would not engage. Chloroform was again administered and an easy version performed. In this case dystocia was not so much due to the shortened conjugate, as the version proved the head could easily pass through the superior strait, but to the fact that the head was crowded anteriorly and struck the pubes so squarely that the propelling force was nearly all lost against it.

While many more cases could be cited showing dystocia produced by the conditions enumerated, these two will suffice to demonstrate the line of treatment to be followed where the contraction is not so great as to prevent delivery without enlarging the pelvic canal.

Minneapolis, Minn.

## SELECTED ARTICLE.

### LAPAROTOMY FOR TUBERCULAR PERITONITIS.

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THE writer has been much impressed by the splendid results following laparotomy for the cure of tubercular peritonitis. Seven cases embracing almost all of the types of the disease comprises his personal experience. The results attained in these cases were so markedly favorable to the operation that the results and opinions of others were sought. Conversation with other surgeons revealed a general and favorable opinion of the therapeutic value of laparotomy in this very serious disease of the peritoneum. And so commendatory are the reports and writings of able observers in this field that it is hoped that the following compilation of the literature of the subject found in the library of the Surgeon General at Washington, added to report of the cases per-

sonally observed, may prove valuable, and is the only apology offered for the following pages.

The cases from my own practice are the following:

I. *Tubercular Peritonitis, Laparotomy, Cure*, February, 1897.

Patient a female, aged 46 years, without any family or personal history of tuberculosis, had noticed an increase in the size of her abdomen for about eight months, and her physician thought she had an ovarian tumor. The diagnosis of tubercular peritonitis was made from the nature of the dullness, surrounded by small areas of tympanites, also from her general appearance, together with the general evidence of normal pelvic organs.

*Operation.* A median incision was made from which a large amount of flocculent straw-colored fluid was discharged. There were many adhesions, especially in the hepatic and splenic regions, all of which were separated with the finger. The visceral and parietal peritoneum were studded with small tubercles. Gauze drainage was made. The patient made a rapid recovery from the operation and was known to be in perfect health seventeen months after the operation.

II. *Laparotomy for Tubercular Peritonitis*, July 1896. Patient a Bohemian, 46 years of age, with four healthy children. No hereditary tendency to tuberculosis could be found, and the patient herself was large and strong, yet there was a suspicious scar in her neck, which she stated was due to an abscess in early life. The abdomen had been enlarged for about six months and at the time the entire cavity was soft and greatly distended. There was no temperature.

*Operation.* A median incision was made and a large quantity of straw-colored fluid evacuated. Both the parietal and visceral structures, so far as examined, were studded with tubercular nodules. There were no adhesions. The wound was drained with gauze. Patient made a rapid recovery, and thirteen months afterward, upon examination at the hospital, she was found in perfect health.

III. *Tubercular Peritonitis, Laparotomy; Recovery from the Operation, but Death Later from the Disease.* Consultation, Dr. Powers. Patient, female, aged 24 years, had been suffering from a severe diarrhœa, hectic and abdominal pains for almost a year previous to operation. The abdominal enlargement came on gradually, then became pronounced. She had become much

emaciated, and the diarrhœa and pain were not relieved by medical treatment, and operation was advised. On examination there was dullness alternating with tympanites over the abdomen. The points of dullness did not change on altering the position of the patient. There was considerable tenderness on pressure. No disease of the pelvic organs could be made out.

*Diagnosis*, probably tubercular peritonitis, and an operation was performed. A median incision was made below the umbilicus. The peritoneum was found greatly thickened, and the intestines firmly adherent. Localized abscesses were found and large masses and tubercular fluid were evacuated. The exudation was abundant. The visceral and parietal peritoneum were greatly thickened. After evacuating the fluid, gauze drainage was established. The patient was left in charge of Dr. Powers, who reported later the appearance of a fecal fistula. The patient for a time improved, but at the end of two months she died, having gradually, emaciated and grown steadily weaker.

IV. *Laparotomy for Tubercular Peritonitis Producing Tumor; Obstruction of Bowels; Recovery from Operation; Death Later from Obstruction.* The patient, a woman, about 46 years old, had observed the development of an abdominal tumor for almost a year, which in the course of the development finally produced obstruction of the bowels. The obstruction was temporary and could be overcome after persistent effort. The abdomen was enlarged and on palpation the tumor could be felt occupying the greater portion of the abdomen below the umbilicus. It gave a distinct impression on palpation of its being very close to the abdominal wall, in fact at first impression it seemed to be attached to the wall. It was freely movable, was not painful and was flat on percussion. Examination per vaginam revealed a tumor occupying the central portion of the pelvis, behind the uterus. It was fairly movable and could be made out as a part of the tumor palpated in the abdomen. Per rectum the mass was felt pressing down upon this organ producing a distinct mechanical obstruction. The colon in most of its course could be made out very much distended. Taking into consideration all of the facts, no definite diagnosis was arrived at, and it was decided to make an explanatory incision and deal with the tumor according to the additional information gained by this procedure.

*Operation.* A median incision was made, and it was at once

apparent that we had to deal with a solid tubercular tumor, through which coils of intestines passed, but an inspection of the outer surface of the tumor failed to reveal any intestinal coils. But the intestine could be seen passing into and emerging from this very large mass, but no intestinal coil could be seen upon its surface. It was a distinct mass which filled and choked the pelvis, embracing within it numerous coils of the small intestine, and the whole mass rested heavily upon the sigmoid flexure and the rectum, producing thereby a mechanical obstruction. No attempt was made at surgical treatment of the tumor. The wound was closed. The patient was scarcely affected by the operation. The wound healed rapidly and she was soon able to sit up. Complete obstruction of the bowels occurred, however, from which she could not be relieved, and she died at the end of the third week.

V. *Tubercular Peritonitis. Laparotomy; Recovery.* Mrs. A., aged 39, with a history of pulmonary tuberculosis in her mother and sister, had observed an increase in the size of her abdomen for about seven months. On examination the abdomen was found distended with fluid. There was no temperature. She had been losing in weight. She was pale and emaciated. Tubercular peritonitis was diagnosed.

*Operation.* A median incision was made and a very large amount of straw-colored fluid evacuated. Tubercular peritonitis was found to extend as far as observation could be made. The patient made a recovery in three and one-half weeks and has continued in good health for nineteen months.

VI. *Tubercular Peritonitis in Boy; Laparotomy; Recovery,* March, 1898. Boy ten years old, with tubercular history on his father's side of the family. Had been rapidly emaciating, and complained of a great deal of abdominal pain and a gradual enlargement of the abdomen. Fluctuation could be distinctly made out. The superficial vessels were enlarged, the skin translucent. From the history of the attack, the fluctuation, the tubercular appearance and the family history, a diagnosis of tubercular peritonitis was made.

*Operation.* A median incision below the umbilicus was made and a large quantity of fluid evacuated. There were adhesions, but not firm, all of which were broken down and gauze drainage inserted. The patient left the hospital between six and seven weeks after the operation, after which time he gained rapidly.



He was last examined between four and five months after the operation, and found to be in splendid health.

VII. *Tubercular Peritonitis; Laparotomy; Recovery.* Mr. E., aged 54, consultation, Dr. Perrier, St. Alexis Hospital. Patient had been suffering from considerable pain for several years past, and had received various kinds of treatment for various diseases at the hands of several physicians. He had been tapped twice, each time relieving him of a considerable quantity of fluid. The patient had had extreme pain, coming on in paroxysms. The pain was so severe that life had become a burden and he was obliged to seek opiate relief. His bowels were constipated, even at times there was obstipation. Large masses could be made out in the abdomen, especially in the right side, filling the pelvis and extending over the median line. There was tympanites alternating with dullness. On changing the position of the patient the area of dullness was not shifted. There was very marked emaciation and loss of strength.

*Operation.* An incision was made about midway between the anterior superior spinus process and the umbilicus, on the right side, this being over the most prominent portion of the circumscribed area of dullness. The parietal peritoneum was very much thickened, and on puncturing it a considerable quantity of foul smelling pus escaped. This was very strongly suggestive of the odor given off in an appendicular abscess. After evacuating the pus, gauze drains were inserted. A sub-umbilical incision was then made and the intestines were found everywhere adherent and the peritoneum thickened. A diagnosis of tubercular peritonitis was made. No positive diagnosis had been made before operation. The patient made a good recovery from the operation and on the sixth day a fecal fistula appeared. The abdominal enlargement disappeared, and the patient improved. The fecal discharge has diminished and the patient promises to make a recovery. Only three weeks have elapsed since the operation and it is too early to report results except that the patient is daily improving.

In a personal communication from Dr. Marcus Rosenwasser, the following cases from his practice were given:

1. Mrs. B., aged 37, had noticed abdominal symptoms six months before the operation. Laparotomy was performed Dec. 7th, 1896. Universal adhesions of the intestines and parietal

peritoneum were found. The peritoneal surfaces were roughened by tubercles the size of a pin-head. The patient made a recovery from the operation in about three weeks. She has been under observation for two years, and is in good health.

2. Mrs. W., aged 32, had been treated for malaria for three months before the operation, which was May 25th, 1897. She had hectic fever and sweats and was extremely emaciated.

*Operation.* A median incision was made and universal adhesions found. The peritoneum was studded with granular bodies. Recovery from the operation was made in five weeks. She gained 18 pounds in the first year. She was observed 15 months after the operation, at which time she was in good health.

3. S. M., male, aged 12 years. Operation was performed Jan. 28th, 1898, two weeks after a rapid enlargement of the abdomen. At the operation the intestines were found matted together and a considerable quantity of serous fluid was evacuated. The peritoneum was thickened and infiltrated with nodules. Recovery in three weeks. Three months later tubercular elbow joint appeared. He went to Chicago eight months later, and in report, one year after operation, he was doing well.

Dr. Charles J. Aldrich has placed at my disposal the notes of three cases of tubercular peritonitis.

Mrs. S., aged 35, had suffered much pelvic pain and menstrual irregularities for some months. She lost flesh, and her pain became more severe, extending down along the course of the sciatic nerve. Her temperature was normal, but she had a persistently rapid pulse. The heart was sound, but there was distinct disease of the right apex. Vaginal examination disclosed a large tender mass occupying the *cul de sac* and extending to the right ovarian region. She was taken to the Cleveland General Hospital, and an abdominal section, by the consulting surgeon, disclosed the intestines and pelvic organs adherent in a mass which completely roofed the pelvis. There was no exudate, but the visceral and parietal peritoneum were thickly sown with millet seed tubercle. No attempt was made to break up the adhesions, the abdomen was closed and she made a prompt recovery. Twelve weeks later scarce a trace of the pelvic mass could be detected. Her pulmonary lesion, however, gained ground and she died of pulmonary tuberculosis two and one-third years after the operation. Post mortem revealed the presence of few adhesions and complete absence of a tubercular process within the abdomen.

Mrs. G., aged 29. no children. Twelve months preceding my visit she had nursed a brother, who died of pulmonary tuberculosis. Six months later she suffered from "pleurisy pains" in the left side. Soon after she noticed enlargement of the abdomen and her menses ceased. Pregnancy was suggested and confirmed by a physician. She grew weaker, emaciated and discontented and sought more medical advice.

Examination revealed some râles in the apex of the left lung, and slight dullness over the left base. Normal temperature but rapid circulation. Abdomen full of fluid, which behaved to all the tests like a simple ascites. Maiden uterus with healthy adnexa. She was sent to the Cleveland General Hospital with a diagnosis of tubercular peritonitis.

Laparotomy done by a consulting surgeon, May, 1897, evacuated an enormous amount of pale straw-colored fluid. The peritoneum was studded with miliary tubercles. Vaginal drain. Recovery from operation was rapid and uneventful. Return to health was prompt; gained 23 pounds in four months. Pulmonary signs disappeared and she now regards herself as in perfect health.

Laura W., aged 13. Father died of fulminating appendicitis. All other members of the family healthy. About ten months before coming to my office she complained of pain in the left knee joint. Soon after this she had "malarial and typhoid fever." She was in bed four or five weeks, and had soreness in the bowels and green diarrhœa. After she got about the pain grew worse and the abdomen began to enlarge, and became very tender.

Examination revealed a tense, tender and distended abdomen, marked by veins showing blue through the transparent skin. An area corresponding to both loins, hepatic, splenic, and epigastric regions, and a narrow band at the brim of the pelvis gave a dull note to percussion, while over an area surrounding the umbilicus, the size of a dinner plate percussion gave a clear intestinal note. Position did not materially change these areas of dullness and tympany. Fluctuation could not be detected. She was placed on her hands and knees, and the abdomen carefully percussed, but the intestinal note persisted throughout the described areas. On the right thigh was a typical tubercular ulcer of the skin.

*Diagnosis*, tubercular peritonitis and ascites; intestinal adhesions to the ant. abdominal wall; tuberculosis of the skin, and apex of the left lung.

Laparotomy by consulting surgeon at the Cleveland General Hospital, Jan. 29, 1898. Median incision below the umbilicus. Extensive adhesions and great difficulty experienced in reaching the peritoneal cavity. Peritoneum a bluish-black, very much thickened, and completely studded with countless tubercular deposits. The large amount of exudate was dark but clear. Recovery was prompt and she gained for two months, when the left knee showed signs of active tubercular disease. A cast was applied and once more she gained for a time. Four months after her operation she died of tuberculosis of the meninges of the brain.

*Post mortem*, Drs. Foot and Chadwick assisting. The basal meninges were thickly sown with tubercles. The lower epiphysis of the femur a soft tubercular mass. The apex of the left lung was the seat of a healing tubercular abscess. The peritoneal cavity was studded with puckered cicatrices in the centre of which were cheesy masses from the size of a pin-head to that of, and resembling a marshmallow button. The disease of the peritoneum was undoubtedly in process of cure.

The method described of diagnosing adhesion of the intestines to the ant. wall of the abdomen, by placing the patient on the hands and knees and then percussing the abdomen is believed to be original. It is certainly of use. In this case it was proposed to make an explanatory tapping before the case was examined by the reporter. This proceeding would most certainly have resulted in injury of the intestine. Wounds of the intestine in tubercular peritonitis will not heal. Hence tapping should be rarely resorted to in ascites where tuberculosis of the peritoneum is suspected. Laparotomy is much safer.

All of the three cases had an unhealed and infected cicatrix which quickly healed under a continuous moist bichloride dressing.

J. H. Carstens, in an article on tubercular peritonitis, as to treatment, says: "If all the symptoms point to a condition of tubercular peritonitis, an abdominal section will give brilliant results. If the disease is probably confined to the appendix, I make my incision in the right side. If, however, it is limited to the pelvic organs I make the median incision and sometimes remove the tube and ovaries, but as a rule I do not. If by opening the abdominal cavity and washing it out the tubercular deposits will disappear, what is the use of taking away the tube?"

"About the technique I will say, be very careful in making the incision. Very often the intestine is adherent to the anterior abdominal wall, and if the intestine is opened it will never heal again. There will result a fecal fistula which never closes. Do not sew up the abdominal incision with animal ligature, as it is liable to infection from tubercle bacilli; always use silkwork gut sutures. In other respects do just as you would in ordinary abdominal sections."

Beatson refers to a case of excision of a large tuberculous mesenteric abscess in a four-year-old boy with abdominal tumor. He was quite healthy until two years before, when he suffered from an attack of jaundice, from which he recovered but remained weak and heartless for some time. A week prior to his consultation with Dr. Beatson there was noticed for the first time "a hard lump in the belly." It gave the boy no inconvenience and was quite painless. His general appearance was healthy. On examination of the abdomen it appeared unduly prominent towards its lower part, the prominence being best seen when the patient was standing erect. On palpation a smooth, globular, elastic swelling could be felt lying in the middle line in the umbilical region. It felt about the size of a cocoanut, and occupied an area immediately below the umbilicus. It was anchored at its deepest part, but could be removed from side to side. A catheter passed into the bladder made alteration in the size of the tumor.

An exploratory laparotomy was done on August 20th. The abdomen was opened in the middle line below the umbilicus. On cutting through the peritoneum the tumor appeared as a smooth, glistening, bluish-gray structure with numerous small vessels ramifying over its surface. The abdominal incision was then extended upwards and downwards four inches in length. While proceeding to separate adherent omentum from the surface of the "tumor," a gush of pus took place from it. The rent from which the pus was escaping was grasped with forceps, and as it was evidently a tuberculous abscess that had to be dealt with, the abscess wall was with difficulty removed. It had apparently originated in one of the mesenteric glands, and in this region scissors had to be used freely to get it away. Some neighboring mesenteric glands were found enlarged but were not further dealt with. The abdominal cavity having been carefully cleansed, the wound was closed without drain.

There was considerable shock after the operation, but this soon passed off. The wound healed by first intention, and Sept. 23rd the boy was well and running about.

C. M. Lenhart, in an article on "The Surgical Treatment of Tuberculosis of the Peritoneum," refers to a woman, aged 34. Nov. 3rd, 1894, found her in her third pregnancy between the seventh and eighth month. On Dec. 23rd she was delivered of a healthy child. She had been examined several times during her sickness and all the organs found to be healthy, although she was slowly losing flesh and strength. In the fifth month a slight swelling was discovered over the region of the appendix. She was thought to have appendicitis and an operation was proposed but not accepted. In the seventh month of her present sickness she had become very weak and greatly emaciated and was taking large doses of morphine to relieve the abdominal pains. On June 17th, 1895, she consented to a laparotomy, which was done at Zanesville Hospital by the abdominal surgeon of that hospital. The appendix was found inflamed and a hard particle of fecal matter found in it after its removal. About half a pint of serous fluid was drained from the peritoneal cavity. The peritoneum was found studded with hard miliary tubercles. The other abdominal organs were found normal. She made a rapid recovery. It is now three years since the operation and her health continues good.

A large proportion of all the various forms of tubercular peritonitis are cured or greatly benefited by a single laparotomy.

P. T. reports a case of acute tubercular peritonitis.

W. D., aged 23, admitted to the hospital Feb. 1st, 1898, for weakness, abdominal pain and distension. Eight years before he had been tapped for pleurisy and four pints of fluid withdrawn. Another attack one year before and seven pints withdrawn from chest on left side. Present illness dates from a fortnight before admission, beginning with weakness and fainting on the street. No pain, no vomiting and no headache, but a cough. A week after the first symptoms he noticed that his abdomen was distended, and slightly increased in size. The patient thus had ascites with signs of bronchitis at both bases. Mainly by process of exclusion, a diagnosis of tubercular peritonitis was made. Symptoms grew gradually worse. Pain and swelling of abdomen much increased. On Feb. 6th he was much worse and Dr. Taylor

and Mr. Dunn decided to operate. An incision was made in the linea alba, midway between the umbilicus and pubes. The amount of fluid gradually allowed to escape was about six pints of clear, light yellow serum sterile, on bacteriological examination. Several loops of intestines were drawn out and examined but no tubercles found. The sigmoid was drawn out and found to be inflamed, with flakes of lymph attached. The cæcum and appendix were then examined and were found to be intensely red with flakes of lymph adherent. No adhesions. Mr. Dunn then made a second incision in the right iliac fascia and removed the appendix. It contained no secretion and appeared normal internally. The question arose as to whether it was not a case of appendicitis, but Dr. Taylor thought that the condition of the appendix was not such as to explain the patient's peritonitis.

For a time the patient seemed to do well, but about 18 hours after operation, vomiting set in. This was relieved by washing out the stomach. Two days after operation the dressings were quite dry and on the third day the draining tube was removed. Abdomen was not distended and fluid had not recollected. Very little pain or tenderness, and abdomen distinctly moved on respiration. On Feb. 9th he was much worse. Vomiting continued, very foul. He gradually sank and died on the 10th, 84 hours after operation. At post mortem, calcareous bronchial glands found, and signs of recent and old tubercle in both lungs. Intestines covered with small tubercles and deposits of tubercle on surface of diaphragm and on mesentery. The brain showed small deposits of tubercles.

Richard Douglas, in "A Clinical Lecture on Tubercular Peritonitis," refers to a female, aged 38 years, married, multipara, of tuberculous family history, had been in ill health two years. Abdomen symmetrically distended, the enlargement lying chiefly on the right side, the most prominent part being a little above the level of the umbilicus. A smaller enlargement, apparently separate from the other is seen in the right inguinal region. The integument is pale and anemic, the veins not specially enlarged. Respiration chiefly thoracic. Tumor very soft and fluctuation remarkably distinct. In view of the emaciation, the amenorrhœa, the elevation of temperature, the increased pulse rate, we pronounced this a case of encysted peritonitis, probably tubercular in nature.

*Operation.* An incision in the median line. Examination shows uterus, tubes and ovaries studded with tuberculous nodules. On the left side a very delicate membrane, a mere veil of adhesion is found, stretching from the anterior parietes, completely isolating an area or pocket of the peritoneum. This membrane is easily ruptured, and the fluid escaping is a pale, straw-colored infusion. There are many smaller sacs distributed over the mesentery of the small intestine. The abdomen was irrigated with normal saline solution. Drainage tube was introduced and incision closed in ordinary way. Patient made an uninterrupted recovery.

CASE II. "Female, aged 42, spinster. History of abdominal disturbance for at least 12 months, two distinct attacks of colic and obstinate constipation, which two weeks ago amounted to obstruction lasting for eight days, accompanied by rectal tenesmus, nausea and vomiting, increase in pulse rate and normal temperature. The abdomen tympanic from the first, has become dull and fluctuation is remarkably distinct. Careful palpation fails to reveal the presence of a tumor or induration, yet the great distension precludes the application of this method of examination. Diagnosis of chronic serous peritonitis, with malignant disease of descending or pelvic flexure of the colon.

*Operation.* Small incision just below the umbilicus, and two gallons of pale straw-colored fluid escaped. Omentum contracted into a hard mass, which is closely adherent to the transverse colon. Coils of small intestine are enveloped in the omentum. Over the surface of the omentum and adjacent intestines we find studded tuberculous nodules. The sigmoid flexure of the colon and parietal peritoneum over the inguinal region, uterus, tubes and ovaries are all thickly set with pale, yellow nodules of like character. The entire peritoneum presents a congested and bluish mottled appearance.

Certainly the clinical diagnosis was wrong and the case is one of general tubercular peritonitis, the infection, in all probability coming from the uterine appendages."

"NOTE. Operation was completed in a few minutes, cavity irrigated and glass drainage tube employed. Patient rallied from operation very quickly and expressed herself as feeling remarkably well. Thirty hours after operation, feeling quite comfortable, she fell into quiet sleep, from which she suddenly awoke and



said she had had a terrible dream. She complained of oppression and difficulty in breathing, grew cyanotic, became delirious in a few minutes and rapidly sank and died, in all probability from cerebral embolism."

F. G. Finley reports case of pulmonary tuberculosis, laparotomy. Male, age 42 years, pain and swelling in abdomen. Admitted to hospital Feb. 7th, 1898. Diagnosis of tubercular peritonitis rested on an indefinite tumor in the abdomen, with fever, and on the presence of physical signs of tuberculosis at the apex of the lung. Laparotomy performed Feb. 25th, when the intestinal coils were found much matted together by moderately firm adhesions. Numerous tubercles were scattered over the peritoneum, and small pockets of fluid were present on the left side. Good recovery. Stitches were removed on the tenth day. He left hospital March 9th, feeling in better health, free from pain, and general condition improved.

CASE II. Miliary tuberculosis of peritoneum, laparotomy. Subsequent involvement of pleura and pericardium. Female, aged 21 years, abdominal swelling. Admitted to hospital Feb. 6th. There was then some shortness of breath on exertion and evidence of ascites and fever. A diagnosis of tubercular peritonitis was made, and laparotomy performed emptying the abdominal cavity of fluid on Feb. 11th. The peritoneum was thickly studded with tubercles. Continued high temperature and loss of flesh. Abdomen slightly distended; there was dullness in both flanks, but no fluctuation. Breathing slightly hurried, no cough or expectoration. On right side there was dullness and a few crackling rales for an hand's breath at the base posteriorly. The apex impulse was felt in the fourth space, somewhat feeble in spite of the thin chest wall. The cardiac dullness was triangular in form, beginning above at the third rib, its right border extending obliquely downwards and outwards to join the hepatic dullness at the fifth right rib, the lower part of the sternum, and the fourth and fifth intercostal space to the right of the sternum being dull. The left border of the triangular area of the dullness extended down from the third left rib to the apex and then blended with the dullness of the fluid in the pleural cavity. March 25th the patient gaining flesh and strength and able to sit up in a chair.

The prognosis in this case is exceedingly unfavorable. With

such extensive disease an unfavorable prognosis must be given, and although a gain in strength has occurred, the continued fever shows the process to be still active.

J. P. Creveling discusses the question as to how and by what means simple laparotomy proves beneficial. Mere exposure to the air in many cases effects a complete cure. It is claimed, and statistics support the claim, that about 70 per cent of all the cases are cured by these means. Roesch has collected 358 cases operated on, of which 250 were cured. Morris, of New York, claims the results are due to purefective changes caused by bacteria from the air. Thompson, of Edinburgh, believes the initial incision is the essential factor in bringing about a curative result. Nannatti and Baciocche, after experiments, attribute it to the mechanical influence stimulating the reparative changes in the peritoneum. Stchegoleff believes recovery is reached by the inflammatory process, that the phagocytes play the important role. Jordan concludes that the real cause is undetermined. Creveling thinks that in fibro-plastic cases the adhesions should all be carefully broken up; that mere exposure to the air is insufficient. In simple cases exposure to the air is adequate to effect the desired result. Lately the introduction of sterilized air into the abdominal cavity has been tried with encouraging results.

D. Condamin gives details of four cases as follows:

i. Tubercular peritonitis of adhesive form. Laparotomy. Rapid cure. Patient aged 36, operated on in 1896.

ii. Peritonitis of ascitic form. Simulated an enormous tumor of stomach. Laparotomy. Cure. Patient aged 27 years. Operated on in 1896.

iii. Cyst of ovary. Tubercular peritonitis, localized in cæcum of ulcerous form. Ovariectomy. Cure. Patient aged 29, operated on in 1894.

iv. Tubercular peritonitis of the pelvic form. Vaginal laparotomy. Ablation of tubercular adnexæ. Cure. Patient aged 28 years, operated on in 1891.

As none of the above are of recent date, we give no further details.

Sergi; Trobbella reports two cases:

i. Girl, aged 13. Simple laparotomy, incision in the median line. Discharged cured at the end of ten days. One month later the patient died suddenly. No autopsy was held.

11. Boy, aged 11. Simple laparotomy, incision in the median line. Cured in ten days. Eight months after was in good health.

J. Schramm reports on a case of recovery from peritoneal tuberculosis, eight years under observation. It was a case of encysted tubercular peritonitis in which laparotomy was done. Five litres of clear fluid, rich in albumen, was evacuated and the cavity carefully sponged dry with antiseptic sponges, and no other medical application made. Pus in drainage tubes removed next day. Patient recovered. Author places no value upon lavage with medical agents (iodoform, carbolic acid, sublimate, ether, nor upon the sterilized moist air, recommended by Noter).

With Brumm, he emphasizes the thorough swabbing and drying of all affected parts of the peritoneal cavity.

Huyberichts reports a case of peritoneal tuberculosis in a rag-gatherer. Laparotomy was performed and all organs of the abdomen found covered with tubercular granulations. Operation was followed by temporary improvement, but death occurred in about six weeks.

Prof. Grancher distinguishes three forms of tubercular peritonitis: 1, insipid with ascites; 2, fibro-caseous; 3, mixed, with sac of fluid. From point of view of prognostics, opinion has greatly changed since the time of Grisolles, who wrote in effect: "It is not proved that one may not see tubercular peritonitis cured, —understood of course of uncomplicated." In 1878 Siredey and Donlos gave death as the habitual termination. Death is frequent it is true, but the disease presents many ameliorations and occasional cures.

Spencer Wells opened abdomen of a woman whom he thought to have a neoplasm. He found to his surprise tubercular peritonitis and closed the abdomen, and to his surprise the patient got well. In spite of the operation of this case, laparotomy for cure was rarely performed.

Koenig soon reported 11 cases in which laparotomy was done, with nine cures and two deaths.

In a patient with tubercular peritonitis do not rush to operate, but see what will be the result of hygienic treatment. He recommends injection of campho-napthal, often puncture, but does not say that this is especially for tubercular peritonitis.

Surgical interference is demanded in cases of fibro-caseous peritonitis, of local peritonitis with encysted collection, and intestinal bacillus occurring in course of tubercular peritonitis.

M. Gangophe reports a case of peritoneal tuberculosis treated by puncture with injection of oxygen. One puncture gave 10 litres of fluid, another a few days later gave 7 litres. The next month the punctures began to be followed by injection of oxygen as follows: March 4th, 13 litres, injection of oxygen. April 13th, 16 litres, injection of oxygen. May 7th, 17 litres, no injection. The effusion gradually disappeared and was not reproduced. General health of the patient improved and patient could return to work. There was some induration to be felt in perihepatic region. This kind of treatment was introduced into practice by Feissier.

M. Condener suggested that many cases, as Winter remarks, are called tubercular peritonitis which are not really such. Winter calls these cases in which no tubercular bacilli are found, *granuloma*.

Dr. Jacobs reports three cases of tubercular peritonitis in which incision into the abdominal cavity had a "remarkable therapeutic result."

Operation effected a cure in case of peritoneal tubercular lesion, and with involvement of genitalia very marked. Fifteen days after operation, vaginal examination disclosed adnexal lesion, but tumors so diminished in volume, that it were difficult to find them by abdominal palpation. Six weeks later patient could be considered as cured. Patient was well three months later.

His three cases speak in favor of intervention in tubercular peritonitis. Intervention consisted merely in *incision of abdominal walls and expulsion of ascites*.

Dr. Jacobs refers to another case with involvement of adnexa, and reports cure by simple exploratory incision *without lavage or drainage*.

Max Nassauer, in an article on the question of cure of tubercular peritonitis by laparotomy reviews the statements and opinions of others and from these and his own experience concludes, *that while simple tapping is followed always, and that too soon, by a return of the accumulation, this does not occur in many cases of evacuation by laparotomy*.

He believes that the curative action exerted on the tubercular process within the peritoneal cavity by a laparotomy, depends upon the increase of the peritoneal circulation resulting from the

peræneorrhaphy; that air, chemical agents, and removal of the exudate are of secondary importance; but that the peritoneum, by reason of its peculiarly excellent resorption and circulation, is especially adapted, on slight mechanical irritation, to exert its antitubercular powers.

Max Westphal, writing of the cure of peritoneal tuberculosis by laparotomy, reports three cases, all of which recovered. The first was reported half a year after operation, the second three-fourths of a year, the third half a year, and all had gained in weight.

From his cases he concludes that the removal of exudation and the reduction of abdominal pressure and consequent secondary hyperæmia produced thereby, and the emptying of the lymph channel, upon which so much stress is laid, by some operators, do not play an important role in the recovery. But the chief consideration is the wide opening of the abdominal wall which permits the entrance of air, probably the important factor of cure.

Prof. Monti, on the question of the therapeutic value of laparotomy in tubercular peritonitis reports twenty-one cases treated from 1893 to 1897. Ten were treated by laparotomy, eleven medically. Seven of the former were cured and three died; of the latter two recovered and the remaining nine were improved.

In tubercular peritonitis with adhesions and considerable swelling of glands, with very little fluid, the operation of laparotomy is not favorable. In one of his cases, abscess and perforation of intestines followed, which should be a warning.

In a certain class of cases laparotomy gives brilliant results.

Marchthurn writes of 19 cases of tubercular peritonitis. Review of his cases and results are as follows:

No deaths from operation itself. One patient died of inanition. There was certain recovery in 12 cases. One was observed two years after, and one five months, and no recurrence. In each of three cases laparotomy was twice performed. The recurrence averaged three to seven months. Two of these entirely recovered. The third died five months after operation from pulmonary tuberculosis, the peritoneal lesion was cured. Two patients were tapped four months before laparotomy. One was discharged improved (no later information), the other recovered. There was complication with pulmonary tuberculosis in eleven cases. Of

these two were entirely cured; six, according to record, were discharged as cured (further information wanting); three died, two of whom, however, were to be considered as cured of the peritoneal disease. In other eight cases the lungs were sound and all to be regarded as cured. This comparison of cases, with and without pulmonary complication, confirms the remark of Spath, that pulmonary disease hurts the prognosis, and laparotomy is suitable only for primary tubercular peritonitis.

Machthurn does not subscribe to latter part of this dictum. With his previously reported 38 cases,—in all there were 21 (55 per cent) cured, in his opinion, gives laparotomy first place in methods of treatment. It is seldom harmful and in most cases beneficial. Puncture is sometimes beneficial. The advantage of laparotomy is that it permits free access to and the removal, if necessary, of diseased organs.

Prof. Duplay, in a clinical lecture, recommends laparotomy in cases of peritoneal tuberculosis and operates on a case.

The statistics of Roesch are of great interest. He reports 358 cases in which simple laparotomy was done for the cure of ascitic form of peritoneal tuberculosis, the best results obtaining,—75 per cent of cures. The fibrous form gives results a little less favorable, but has a percentage of cures equal to 65 per cent. In the ulcerative and fibro-caseous forms the proportion of cures was 60 per cent.

Dr. Abbe reported a case of a woman, aged 25 years, who had been in good health until six months prior to coming under observation. Her abdomen swelled very rapidly, and several times large quantities of fluid was removed from the abdomen. She lost in weight and had a persistent cough. Two pints of fluid were removed from her left chest. The abdomen was opened, under cocaine, and the cavity flushed with warm saline solution. The peritoneum was found studded with miliary tubercles. Little pain was suffered during the operation. A chill lasting 45 minutes followed the operation. She has been in good health since her discharge from the hospital, no fluid has accumulated and she has increased in weight, from 106 to 132 pounds.

Dr. Charles K. Briddon reported some remarkable results from opening the abdomen for tuberculous peritonitis. An Italian woman, supposed to have either a tumor of the omentum or a

large floating kidney, was subjected to exploratory operation which revealed a tuberculous peritonitis with great thickening of the peritoneum. The small intestines were matted together in a large mass resembling a cauliflower, having lost all resemblance to intestines. He made a long incision and put in tamponnade of iodoform gauze. Two years after the operation she had so thoroughly recovered that it was impossible to tell that there had been any trouble within abdominal cavity.

Another case was that of a Roumanian upon whom laparotomy was performed and a fæcal fistula developed two weeks later. Dr. Briddon attempted to close the fistula in the large intestine with two lines of sutures, but all of the sutures gave way.

Dr. Burney cited a case of ulcerative peritonitis. There were superficial ulcers all over the intestines and the peritoneum. The patient also had tuberculous testis with large hydrocele. The operation consisted in making an incision below the umbilicus, emptying the abdomen of fluid, irrigating with salt solution and establishing drainage. Three weeks later the boy was perfectly well.

Dr. Curtis reported two cases of his in which there was disease of the genital organs and a collection of pus behind the uterus. The peritoneum was infiltrated with tubercles as far as could be seen. Hard masses could be felt as high as the umbilicus. An incision was made, the pus evacuated and the patient made a recovery. The masses which were present disappeared later.

Dr. Abbe referred to a case reported by a French surgeon in which there was a pleurisy cough and emaciation, all of which disappeared on aspiration of the abdomen.

Prof. Cumston refers to the case of a man, aged 27, who was operated upon for appendicitis on Oct. 12, 1897, from which he recovered, but since has had constipation and the right illiac region was tender and palpation revealed a doughy mass in the region of the cæcum. The patient was apparently much benefited by the operation, and up to the latter part of December was feeling well and had gained in weight. Suddenly he was taken with a cough and diarrhoea and died. The autopsy revealed the presence of a pulmonary and intestinal tuberculosis.

Dr. John Duncan, in an article states that his own experience extends to 21 cases, seen chiefly in Dr. Afflick's wards, but also

in other wards and in private practice. Of these, one died two years after the first operation, the abdomen having been re-opened and several times to relieve tension. In three cases, the abdomen, when last seen, was still somewhat swollen and resistant. One patient aged 28 returned on account of localized abscess in the neighborhood of the wound; and one, aged 5, with a fæcal fistula; while another, aged 6, had recently come to the infirmary to be treated for tubercular elbow, with the abdomen perfectly well. The others recovered, to all appearance, completely, and have remained well for varying periods up to four years.

Peritoneal tuberculosis in two little girls less than 5 years of age. Laparotomy in one case. Cure. Dr. J. Brandt.

Author comments on the rarity of the disease in children under 6 years of age.

Case of operation. Little girl aged 5 years. Subumbilical laparotomy was performed. The surface of the liver was covered with numerous tubercles. The intestines were covered with large false membranes. A little serous fluid escaped. The adhesions were carefully separated. The peritoneal cavity was lavaged and abdomen closed without drainage. After a few weeks the patient felt no pain in the abdomen, the swelling had subsided and the temperature remained normal. A year after the patient was well and hearty. A case of complete cure.

Reference to laparotomy and intestinal occlusion in the course of peritoneal tuberculosis, "Guerison operation" and notable amelioration of the general state.

The case was that of an electrician 23 years of age. There had been absolute intestinal occlusion for four days. Median laparotomy was performed below the umbilicus. Mesentery was converted into a sort of trellis work, through the bars of which numerous coils of intestine protruded. One of the coils of intestines appeared blackish, strangulated and irreducible. The caseous bands about the strangulated intestines were cut and the intestine released. The abdomen was then closed. There was immediate relief of occlusion and notable change in the general condition of the patient. The peritoneum was thickly sown with granulations. The patient 20 months later presented himself with large cold abscesses in lumbar region, which were opened. The patient is much improved, but has a fistula in lumbar region.

Dr. Lejars publishes a report on a surgical observation in certain form of acute tubercular peritonitis.



In this operation an incision was made below the umbilicus in middle line over distended abdomen. The peritoneum was opened and a little clear, serous fluid flowed out. The thick and fatty mesentery was sown with brownish round and hard granulations about the size of millet seed. The intestines also were covered with granulations. It was a case of acute miliary tuberculosis. After this fact had been determined, the abdomen was again closed with sutures. Nothing else was done. The symptoms of obstruction for which the operation was done were relieved immediately. The case cannot be reported yet as cured, although relieved of many symptoms. The patient still remains pale and sickly.

Dr. Guinard, in an article treating of peritoneal tuberculosis, discusses exhaustively the indications for surgical interference and the different measures employed. The following statistics drawn from his article would seem to favor the relative benignity of laparotomy.

Roesch gave statistics of 368 cases from which it appears that 9 per cent died from operation, 14 per cent some time after, probably indirectly from operation. More recently Marganicci has given the following figures for 253 cases: 14.6 per cent mortality. Of the deaths 8 per cent were indirectly charged to the operation; 6 per cent followed immediately after. The cures then were 77 per cent in Roesch's statistics and 85 per cent in Marganicci's.

The question of the outcome of these cases, that were considered cured, in after years, is important. Koenig, of 84 patients declared cured, observed 30 for more than two years, and 14 of these for longer than three years. In 5 cases of Borari, out of 6 operations, cure persisted for a period varying from 7 to 31 months. One lasted 14 years after operation. In Spencer Wells' famous case, the patient was seen 27 years after operation. Anatomical cure confirmed in some cases by finding an entire absence of tuberculosis on second laparotomy. On the other hand recurrence is often noted. In statistics of Valentia von Machthum, 3 out of 19 cases were reproduced in from three to seven months after operation. In a statistical calculation of 131 cases of ascitic form, there were 19 recurrences noted. Valentia von Machthum gives statistics of 19 cases of tubercular peritonitis diagnosed by aid of bacteriology. These 19 laparotomies have given 16 cures,

of which some survived several years. Of the three deaths, one occurred 36 hours after operation, the two others at the end of the second and fifth months, by a progressing pulmonary tuberculosis which existed before operation. Statistics show importance of the form of tuberculosis. All cases of *acute miliary tuberculosis* treated by laparotomy terminate in death in brief space of time. In the *ascitic form* on the contrary, the results are surprisingly good. Some statistics give in this form 90 recoveries in 100 laparotomies. The prognosis is particularly favorable for children, in which the cures have been known to persist through 10 years. At any rate, from various statistics, one can count on 80 per cent of recoveries in these cases. In the *ulcerated form*, results are less satisfactory. In 22 laparotomies, collected by Seguen, were 9 deaths, of which 4 occurred immediately after operation, 4 from pulmonary tuberculosis and from intestinal fistula. Of the 13 cures, 3 of them only could be followed. In general there were only 60 per cent of recoveries. The *fibrous form* tends naturally to cure, but is liable to produce early and grave mechanical complications. We should interfere in accidents, such as intestinal occlusion, to prevent immediate death. This explains the considerable mortality. In 26 cases, 9 deaths were reported, 65 per cent recovered. As to *localized forms*, we have precise information only for those of genital origin. In 17 cases of tubercular salpingitis with pelvic peritonitis, collected by Adelbert, there were 4 deaths and 13 recoveries, of which one persisted 14 months, another more than 2 years and another more than 3 years. In 24 cases observed, with generalization of tubercular infection of the genital organ, there were 10 deaths, 3 improvements, 1 recurrence and 10 recoveries. These 41 cases give *en bloc* a mortality of 34 per cent.

It would be instructive to compare these figures with those of spontaneous recoveries, but there is no exact data.

"Finally, laparotomy is, for the effect in question, the therapeutic measure very superior to all the rest. It gives, in general, results which cannot be obtained from any other method of treatment, but it is self-evident that it is not indiscriminately applicable to all cases with the same chance of success, and there are indications and contra-indications which are here given:

Indications for laparotomy in different forms of peritoneal tuberculosis.

Acute form. All intervention ends in death.

Ascitic form. Interference as early as possible before ulceration of tubercle sets in.

Ulcerate form. Prognosis bad, but also if left alone, therefore operate as in others.

Fibrous form. No laparotomy except intense pain and intermittent fibrile attack, ulceration, caseous attack.

Contra-indications of laparotomy are drawn from complications with extra-peritoneal tuberculosis."

#### TECHNIQUE OF THE OPERATION.

Abdomen opened, proceeding differs a little according to form of affection presented.

Ascitic form. Evacuate, remove diseased organ or parts found. Carefully dry with no fear of rubbing, by means of sponge or gauze tampon, saturated with van Swieten solution. Thinks lavage of peritoneal cavity useless.

Ulcerate form. After opening with hand, break up adhesions. Finding sacs of pus, may use lavage here. Leave in infer. angle of wound large cautchouc tubes.

#### ACTION OF LAPAROTOMY.

There are different theories as regards this. Sanger thinks it favors or awakens absorbent properties of serous membrane. Wacker and Cameron think it is nothing more than a removal of serum, whose presence spreads the disease. (Why does it cure in dry form?) Mosetig Moorhof thinks that it is due to exposure to light. The author thinks with Koenig, Pie, True, Cicherilli and Casatti that laparotomy favors regression and fibrous transformation of tubercles by a process which has been experimentally studied in animals by Kischenski.

#### TAPPING AND INJECTIONS.

The following methods are found in literature:

- (1) Simple tapping with evacuation of ascitic fluid.
- (2) Evacuating puncture followed by lavage of boric acid (Debove and Ceccherelli), by sterilized water (Margaricci), by injection of iodoform ether (True), by injection of camphor-naphthol (Netter, Pierdu, Dubove and du Cazal).

(3) Tapping followed by injection of sterilized air (Mosetig Moorhof). The last procedure was the subject of important communication of Joaquin Duran (of Barcelona) at International Congress, Moscow.

It is contact of air and the irritation it produces which is destructive to tubercular bacilli.

Finally is to be mentioned intra-peritoneal injection of serum of dog. Kirmission and Pirard have published observations on this point.

Casati, on therapeutic principles has proposed as a means of augmenting phagocytic action, to make in the abdominal wall a simple incision through which introduce strip of gauze, which is to be left some time to provoke irritation. Only one case of cure does not permit drawing conclusions.

The surgical treatment of tubercular peritonitis now rests upon a solid foundation. This disease if left alone or treated by medical means usually terminates unfavorably. The result of operative treatment in tuberculosis of the peritoneum is more promising than that of tubercular process in almost any other tissue. The statistics are so favorable that, were they not uniform in the reports of all the operators, one might question their truthfulness. As to the method of procedure, good results seem to have been obtained by techniques differing in every essential excepting that of turning out the fluid. The cases in which after the evacuation of the fluid from the cavity, other fluid was injected, or some preparation of iodoform applied, or the powder dusted in the wound, or in which oxygen was injected, or in which the cavity was washed out with salt solution, all showed like improvement. In short, it appears that the technique employed, beyond that of opening the peritoneal cavity or of evacuating the fluid, seemed to yield about equally good results. In the statistics, it will be observed that there have but few deaths from the operation itself, so that the mortality need not be a factor in considering the advisability of performing an operation for this disease, whose tendency is to cause death unless relieved by such procedure. As to the percentage of cures to be expected from operative procedure, in collecting all the cases that could be found up to the present time in the literature of this subject, we are able to report eight hundred and thirty-five (835) cases which were cured, being eighty plus (80) per cent of cures. From clinical

experience and from an extensive review of the subject, I am inclined to endorse the conclusions of Guinard, just quoted. Unless some contra-indication to an operation exists, every case of tubercular peritonitis ought to be operated upon as early as the diagnosis is made.

—*Bulletin of the Cleveland General Hospital, Jan., 1899.*

## EDITORIALS.

### PAY PATIENTS AND FREE HOSPITALS.

With the gradual growth of the practice of letting rooms to well-to-do patients, in hospitals which are nominally charitable institutions, intended for the poor, various questions arise which are interesting both to the profession and to the public.

Medical practitioners see, with dismay, that their practice is being undermined and their means of livelihood taken away by the hospitals, which are now being established not only in the large cities, but even in small towns.

These hospitals, to raise money, offer every inducement to patients to take private rooms, the chief inducement being that there will be no doctor's bill to pay; on the other hand they have hitherto tried to avoid legal responsibility for any accidents or faults of negligence, on the ground that they are charitable institutions.

The recent ruling in New York renders this plea ineffectual in future.

A lady in St. Vincent's Hospital, who was paying full price for a private room, was badly burned while under the effects of ether, just after her operation, by the careless use of a hot water bottle, by one of the nurses in the training school of that hospital. Five judges agreed that "Though the defendant is called a charity hospital it has its pay side, on which side it is in the habit of furnishing private rooms and nurses to well-to-do persons for a full price, thus entering into an express contract.

"For the breach of that contract the plaintiff is entitled to the same damages as though the action had been for negligence pure

and simple, and she is entitled to an adequate compensation for her injuries. •

"The person furnished (Miss Kinney) was not a trained nurse, but a pupil in the defendant's training-school, having studied only nine months of the two years required for the course.

"It stands to reason that such a misfortune as happened to Miss Wade would have been less likely to occur had she been in the hands of a fully trained nurse.

"It is for the jury to say whether in furnishing this careless pupil of limited experience, the defendant fulfilled its contract obligation to the plaintiff: and if it did not, and injury resulted from the breach of the contract, to award the adequate compensation for such injury."

This ruling apparently decided that a similar accident for a patient who is paying nothing for board, would not render the hospital liable for damages.

An interesting question, however, arises, as to what would be the status of a surgeon who should injure a patient by ignorance, or negligence, either of himself or of the assistants who were acting under his responsibility and direction, if the patient were paying board to a hospital in which the surgeon received no salary, and when he was under no expectation of receiving payment for his operation because the rule of the hospital forbade charges to patients in private rooms.

Could he shield himself under the plea that he was working for charity? or would he be held to be a negligent employe of the hospital?

Judges and juries are by no means too considerate to doctors, and we fear that they would hold that any surgeon who was foolish enough to work for nothing for well-to-do patients, thereby losing his fee and injuring the profession, would not do so unless the hospital substantially paid him for his services, although not in money, yet in honor and increase of practice, and a chance to distance his professional competitors, thereby offering him tangible advantages equivalent to a salary in money.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### RHACHITIS (RICKETS).

HENRY N. POTTER, M.D.

AMONG the diseases that are really confined to early life, there is not one that is more interesting to the medical man for certain reasons, than rhachitis, commonly called rickets; and while this disease is not in a strict sense a fatal one, the conditions found are such as to call for the most rigid treatment, that they may be relieved and the later results of the disease avoided.

While this disease or condition is not an uncommon one, and while every medical man should understand the means used to correct such a condition, we find too many times that the treatment is far too mild, and the case is left to take care of itself other than the administration of a few bottles of medicine.

If we will but study and investigate the results of rickets, a condition will be found that is not so easily relieved; thus a rigid treatment in the early stages of the disease will avoid the results so many times found later, where a surgical takes the place of what might have been a medical treatment.

Another question which is of interest is that of congenital rickets. This question is not fully decided as yet, but I am a firm believer that this disease is many times present at birth, though possibly without discovery. One case in particular which came under my care manifested the unmistakable symptoms of rickets at birth. The question, too, of this disease being hereditary, needs more proof, so that in this disease there is food for investigation and study by the medical profession. The chief feature of rickets is an alteration in the growth of the bones, by which they

become enlarged at their epiphyseal ends, and so soft that they are bent by the pressure to which they are put in the ordinary use of the limbs. It is essentially a disease of children, the majority of cases commencing between the ages of twelve months and two and a half years. Cases are seen under six months of age, but there is a difference of opinion as to whether the disease may be present at birth. It affects the sexes about equally. We find the disease affecting the poorer much oftener than the rich classes. This is no doubt related to what is regarded by common consent as the chief element of causation,—namely, defective hygienic conditions especially in the matter of food and air supply. The natural food of the infant is the mother's milk, and a child should be nursed entirely until it is eight or nine months old. The faults of diet from which infants suffer are a deficiency of the quality of the milk from ill health, or malnutrition of the mother, or from lactation being continued far into the second year; or the substitution for the mother's milk of various infant's foods, of which a large number contain a high percentage of starch; and for the digestion of this the infant's secretions are by no means prepared. Then it is a common occurrence to allow the child, through ignorance of the parents, meat, bread, potatoes, or other foods only fit for adults. The infant's growth may be affected by overcrowding in close, unventilated rooms or confined to the house too closely. It is very probable that the cause of rickets in a great majority of cases is due to the deficiencies mentioned with the possibility of its being congenital. It does not seem impossible that some defective supply from the mother to the foetus in utero might start the disease even before birth. Some authorities have insisted that this disease is a manifestation of congenital syphilis, but there does not seem to be sufficient grounds for such a view.

There is no doubt that the care of infants, at least as far as the nourishment is concerned, has much to do with the cause of this disease. The Creator destined woman to nurse her offspring for the first few months of its life—that its only nourishment should be the milk of the mother; but in this time of progression and reformation, cow's milk and prepared baby foods too often take the place of nature's nourishment, neither one of which is according to nature's laws. As there is no substitute for the mother's milk, all prepared foods, while they may have some virtue, are not suitable for the early months of life.



The symptoms of rickets may not be noticed at first, and some time may elapse before a physician is called to the case. The symptoms are as follows: The child is restless at night; kicks off its clothes, and lies with its legs and arms exposed. When it goes to sleep it perspires profusely about the head and neck, so that the pillow is saturated. It is very tender about the limbs, so that it does not like to be handled, and often screams when touched. The first evidence of changes in the bones is seen in the enlargement of the epiphyseal ends of the long bones, being well-marked at the wrist, where the ends of the radius and ulna are thickened, and at the ankles and at the knees; but this condition is found best marked at the junction of the ribs with the costal cartilages, where a series of nodules are formed, reaching on either side from the first rib near the sternum downward and then outward to the twelfth rib in the flank. This is called *heading* of the ribs, or the *rickety rosary*. Defects of ossification are seen in the skull, where the fontanelles are large, and may not close until after the usual time, which may be put at about eighteen months. Another symptom is the delay in the eruption of the teeth, the first of which may not appear until the eleventh or twelfth month, instead of the sixth or seventh, and the order of their appearance may present many irregularities. With the enlargement of the ends of the bones there is softness, in consequence of which the bones yield to the traction of the muscles or the weight of the child's body, and become bent, producing characteristic deformities of the limbs, chest and pelvis. The head also acquires a peculiar shape. Very often the child is backward in learning to walk, and if the child tries to walk before the bones are completely consolidated, the weight of the body causes the tibiae and femora to be bent or "bowed," generally with a convexity outward and forward. Sometimes there is a convexity inward at the lower part of the tibiae, the feet being thus widely separated. This is attributed to the child getting about the floor in a sprawling position, using its feet in an unnatural manner. If the child, still unable to stand, crawls much about the floor, the weight of the body falls upon the arms, and the radius, ulna and humerus are bent. In the chest, a deformity is produced by the action of the diaphragm, which sucks in the ribs at their softest part, thus producing a wide groove on either side of the sternum. The sternum is prominent, and the upper part of the chest has a somewhat

square shape; the lower ribs are often expanded over the viscera, forming the upper arch of a tumid abdomen. The pelvis does not usually show any deformity in infancy except in extreme cases. The head, besides presenting large fontanelles and often lines of depression, acquires a somewhat square shape, the vertex being flattened, and the frontal and lateral regions rather prominent. In typical cases the cranium looks large in proportion to the face, but contradictory statements are made on this point, for while some say that hypertrophy of the brain, and distention of the ventricles (hydrocephalus), are common accompaniments of rickets, it is stated by others that the head is not really enlarged, but only seems so because the facial bones are ill-developed and stunted in growth. In extreme cases all of the bones are stunted and shortened by curvature. They become fragile, and *green-stick fractures* are apt to occur. In some cases there may be enlargement of the liver, spleen or the lymphatic glands for a time. The appetite may be good and the child show a perfect or excessive development of fat. The nervous system is involved and convulsions not uncommon, especially laryngismus stridulus. The prognosis in this disease is good. It is essentially a recoverable disease in the sense that it does not directly cause death, and that the process of bone softening ceases after a time, although permanent deformities may result. In a majority of cases there is probably a complete recovery, the bones becoming perfectly straight. In other cases the effects of this disease may be seen in the large square head with prominent forehead, curved femora and tibiae, and the pigeon breast of adults. The greatest danger in this disease is from convulsions and laryngismus. There is danger, too, in the aggravation of bronchitic attacks which the soft state of the ribs causes.

The changes in rickets are best seen at the ends of the long bones or of the ribs. If the swollen portion at the junction of the rib and its cartilage be divided longitudinally, it will be seen that the line between the two structures is very irregular, instead of being straight as in healthy bones. Normally, between the already developed bone and the ossified cartilage are two narrow bands, one bluish-gray—the zone of proliferation; the other of a yellow color—the zone of ossification. These are narrow, straight and parallel. In this disease the proliferating zone is thickened, reddened by new vessels, and has thrown out processes irregularly

into cartilage and bone on either side. Under the microscope it is seen that the proliferation of cartilage cells, preparatory to ossification, has taken place with great freedom, but with no uniformity, as it does in health; that calcification has begun early in some cartilage cells, whereas it is deficient in the trabeculae of the cartilage. The processes of proliferation of cartilage cells, of deposition of lime-salts, and of formation of medullary spaces, take place not in a uniform, regular, or progressive way, but in a most disorderly manner, and with varying degrees of rapidity at different spots. Analogous changes are seen on the surface of the bone where it is formed from periosteum; here is a soft, vascular layer much thicker than is normal, showing a similar activity of the earlier stages of transformation, and delay in the deposition of calcareous salts. The whole bone also is unusually vascular, and the contents of the medullary cavities are redder than normal. The changes in the spleen, liver and glands, when they occur, appear to be due to increase of interstitial tissue.

In this disease a diagnosis is not difficult. The early signs are the sweating of the head and the dislike to being covered up at night; the tenderness of the body generally, the heading of the ribs, and the thickening of the wrists. The inability to walk sometimes gives suspicions of infantile paralysis, but the limbs can be moved and the bone extremities should give the diagnosis.

In the treatment of this disease the first essential is the improvement of the hygiene of the child. It should live in well-ventilated rooms and be taken in the fresh air often. The diet must be carefully attended to. If the child is being nursed, an examination should be made of the mother's milk to determine whether it is good and plentiful. This is not likely to be the case if the mother is delicate, or if nursing has been continued into the second year. If there is lack of nutrition in the breast milk, cow's milk should be given in addition, which is prepared by adding one-half or one-third water, or the milk may be given prepared with peptogenic milk powders. It is best to avoid starchy foods. As the child approaches the end of the first year, beef-juice, broths, the yolk of a boiled egg and custard pudding may be given, but milk should still form a large part of the child's diet. The most valuable medicine is no doubt cod-liver oil, which should be given two or three times a day after meals. Iron is often given, as the syrup of the phosphate or syrup of the iodide; and prepara-

tions of lime, as the lacto-phosphate. Phosphorus has been recommended in doses of 1-120 grain once or twice daily. Many other medications are given, but they are along the same line of treatment. The child should not be allowed to walk only with braces. The deformities of the limbs, which remain after rickets is cured, may, if extreme, be treated surgically. The patient should be carefully watched by the attending physician, that the many conditions which may arise, may be corrected at once.

Burlington, Vt.

## MEDICINAL TREATMENT OF DIPHTHERIA, OTHER THAN WITH ANTITOXINE.\*

EDWIN MOTLEY FULLER, M.D.

IN presenting the medical treatment of diphtheria, in a seven-minute paper, I can only refer to a comparatively few points. In order that my true position in the matter may be understood, I wish to preface with the remark that I am a firm believer in the treatment of the disease with antitoxine injections. I have such faith in the remedy that I believe whenever there is any doubt regarding the diagnosis I would use it, because if the case proves to be not true diphtheria, the remedy can do no harm, while if it shall prove to be such, one has the satisfaction of having used a potent remedy early. And further, in cases where I was taught in my earlier professional career to differentiate, as in "croup," I would also use antitoxine. I am at present persuaded that what I treated frequently for years as "croup" was nothing more nor less than diphtheria.

That there is a medical side to the treatment of this much-dreaded disease, there is no doubt. The pathology, as it is understood today, demands that internal medication shall be exhibited. In the absorption of the diphtheria bacillus into the system, a poison is present which is very prolific in its action. Great de-

\*One of a series of seven-minute papers on Diphtheria, read at the annual meeting of the Maine Medical Association at Bangor, June 8, 1899.

bility and great prostration is quickly manifested. If antitoxine even, is used, the general system demands medication. Not that the medication would always neutralize the inroads of the poison present, but that the system may be fortified, and maintained at a high standard, in order that the economy may be placed in the best possible condition, for resisting disease.

Diphtheria has through the use of antitoxine lost some of its early terrors, just as small-pox has through vaccination. In small-pox vaccination is prophylactic, while in diphtheria antitoxin is curative and prophylactic. Inoculations for the treatment of infants in this disease are eliminated, because it is rarely met in early infancy. Henoch found none under three months in 1403 cases. Feer, in 4250 cases, found only seven under three months. The causes of this exemption are: first, slight opportunity for infection; second, antitoxine properties (resisting forces) of the blood of infants; third, absence of catarrh of the upper air passages. In the treatment there are three great indications to be met: first, to arrest and prevent infection; second, to support the economy; and third, to destroy the toxin of the disease. In the first instance we use germicidal remedies and disinfectants; in the second, supporting treatment; and in the third, therapeutic remedies for the elimination of the disease.

In a malady where the mucous membrane of the nasal, pharyngeal and upper air passages are so extensively invaded, it is very important that prophylaxis of the sick room should be carefully superintended. It should be clean and as sparingly furnished with carpets, stuffed furniture and draperies, as comfort and decency, commensurate with cheerfulness, will demand.

All sputa and excretions should be immediately sterilized and destroyed by fire or burial. Towels, napkins and wearing apparel of the bed, should be thoroughly sterilized, as well as all dishes. In fact, everything used in and about the sick chamber should be kept scrupulously clean and as aseptic as possible. At the termination of the case everything used in and about the sick room should be thoroughly sterilized with Robinson's Formaldehyde Generator. That sprays and medication to the atmosphere may be easily exhibited by means of steam atomizers, and from boiling decoctions over a kerosene stove, is well recognized. Their use is very important, and I would not treat a case without them. The

moist, medicated atmosphere thereby becomes very ameliorating and comforting.

A favorite with me is composed of a solution of the Compound Tincture of Benzoin and Eucalyptol. This, alternated with the slacking of lime, is found to be of great service.

Astringent solutions of Iron in Glycerine and Water have their advocates.

Turpentine, advocated by some, is very nauseating and debilitating, and was long ago abandoned by me.

*Gargles* are important, inasmuch as they keep the pharynx and upper part of the larynx clean. They are frequently very comforting and often assist in detaching exudates.

Peroxide of Hydrogen in 12 to 75 per cent solutions, in water, stands at the head. I believe that Chlorate of Potash, in not too heroic doses, is second in importance, when there is considerable difficulty in raising the accumulating mucus and exudates from the throat; and where there is some pain, the following has been of great service in my hands:

R.

Syrupi Ipecac.,	3ii
Tinct. Benz. Co.,	3ss
Tinct. Hyoscyami,	3ss
Tinct. Myrrhæ,	3ss
Syrupi. Tolutani,	q.s. ad. 3iv

M. et S.: Gargle 15 to 40 drops in  $\frac{1}{2}$  wineglass of water every half hour, also swallow a little each time.

Many physicians use astringent solutions of iron with great success.

The use of Nitrate of Silver applications which were advocated by so many in the sixties, when the disease raged so extensively in this state, and used now by many, I believe to be pernicious and bad.

Local sprays are important and are best exhibited with hand atomizers. The character of the atomizer I believe is important; one that throws a very fine, slow, warm spray is best. A coarse, rapid spray does great mischief to an inflamed mucous membrane by devitalizing it. Frye's Atomizer is an ideal instrument for this purpose. Equal parts of Dobell's Solution and Peroxide of Hydrogen, I consider best; Hydrocarboline is excellent. Either will be tolerated well with most patients. Bichloride of Mercury

is suitable and often recommended in strengths of 1 to 5000, 1 to 4000, and in trained nurses' hands, in 1 to 2000, in rare cases. The objections invariably raised to its use is its very disagreeable taste.

Carbolic Acid has many advocates and it may be used in the strength of 15 minims to an ounce of Glycerine and water. Chlorine water, saturated solutions of Boracic Acid, saturated solutions of Iodoform in Ether, are all useful. A 10 per cent solution of Eucalyptol in Benzoin stands next to Dobell's Solution and Peroxide of Hydrogen, as a spray for the naso-pharyngeal cavity. This can be sprayed about the patient and forcibly breathed into the lungs as an antiseptic. At the onset of this disease it is desirable to elicit the coöperation of the sympathetic system at once. Authors do not mention this fact. I believe in the principle. The eliminating and excretory organs should be stimulated to their best possible form, each being maintained to their highest physiological standard throughout the course of the disease. To do this I would give small doses of Hydrarg. Chloridi Mite often repeated. I would give 1-10th grain doses every half hour till 10 doses are given the first day. After the first day I would recommend 5 doses each morning, following with half a Seidlitz powder, repeated every hour until the bowels had moved at least once. The Seidlitz powders have a remarkable influence upon the bowels, kidneys and bladder. The excess in the phosphatic secretions are the more readily eliminated by their use.

That the heart demands medication and sustaining should be recognized, for investigations and statistics show that when the pulse rate is over 150 the death rate is 50 per cent.

Irregularity of the heart alone, without excessive rapidity, shows a mortality of 47 per cent. A slow heart appears to be dangerous, especially in children, and cases dying of cardiac failure have been shown by investigators, after post-mortem examination, to be accompanied by degeneration of the pneumo-gastric nerve. All practitioners are agreed that it is important to carefully watch the heart in this disease. It is the barometer which often guides us in our prognosis. Tinct. of Digitalis and Tinct. of Strophanthus, together with strychnia, either in 1-30th or 1-60th grain doses, are demanded. In critical cases, better results will be obtained if the strychnia is exhibited hypodermatically. The condition of the blood is important. Investigation

shows that polynuclea leucocytes are characteristic, especially in the early stage of the disease. The early administration of iron is indicated, and it is believed that the Tincture of the Chloride is the most potent of all the preparations. Inasmuch as large doses of this remedy are not always absorbed, it is better to prescribe it in from 5 to 10 drop doses, frequently exhibited.

Quinine I believe to be a valuable remedy, both as a tonic and antipyretic, and can be easily administered with iron.

The nervous condition often observed, especially in children, is met by eminent authority with small doses of morphine. The cold pack, recommended by many, to the throat, I have discarded and now use *warm* packs. In painful cases the packs should be hot. Small-sized cloths which hug to the throat are more potent than the large, sweltering packs.

Stimulating, easily assimilated nourishment is important. Milk is the best, fortified with full physiological doses of whiskey and brandy. From 2 to 8 teaspoonfuls every two hours should be given in all severe cases; proportionate doses for children; narcotic doses of either should never be given.

Milk may be alternated with rich broths of beef and mutton, beef and liquid peptonoids. In difficult cases of deglutition, nutrient enemas should be used. When given by the stomach-tube the nourishment is more efficient. Enemas should consist largely of peptonized milk. When rectal alimentation has to seemingly be abandoned, try not more than 4 ounces at a time, not oftener than once in 4 hours. When all of this shall fail, and the period shall have passed whereby antitoxine can be of service, intubate or perform tracheotomy at once. For the sequelæ which often occur the conditions are to be met as in similar complications in other diseases.

During convalescence, the indications will be best subserved with sustaining nourishment, tonics, iron, arsenic, strychnia, phosphorus and quinine, together with electricity and massage.

Bath, Me.



## REVIEW OF PEDIATRY.

## WHOOPIING COUGH.

Dr. V. Gilbert, in the *Revue Medicale de la Suisse Romandi*, reports his experience in treating whooping cough with the anti-diphtheria serum. He has treated by this method nine children. The effect on all the children was in general the same. The duration of the disease was considerably shortened, no paroxysms occurring after eight or ten days. Moreover, the number of paroxysms of coughing was at once rapidly lessened. Where before the injection there were twenty or thirty in the twenty-four hours, in six or seven days there were only three or four, and vomiting had almost completely disappeared. It was noted also that the cough was much less violent.

No more than 10 c.c. of serum was used in any case, and the quantity at each injection was 2 c.c. to 5 c.c. Two or three days' interval was allowed between injections. There were a surprising number of complicating or following rashes. Thus in the nine cases, two had urticaria, one an arthralgia and erythema, one an erythema extending over the buttocks and abdomen, one a scarlatiniform and one a morbilliform eruption. All are benign.

Dr. Cerioli of Broni has also tried this method of treatment in fifteen cases, three of which were very serious. All but one of the little patients were greatly relieved within three to twenty-four hours after the injection. He used 5 c.c. to 10 c.c. in each case and no child had more than one injection.

## HYGIENE OF THE NURSERY.

Regular habits, proper food, and long hours of sleep are necessary conditions to a healthy infant.

The prime essentials in the nursery are fresh air, good food, and pure water.

Never put a bottle nipple into your mouth, and then into the baby's mouth; this will often prove dangerous.

Always hold a baby in your arms when feeding it, in about the same position as if nursing it.

Feeding at night, after the third month, is both inconvenient and unnecessary; sleep at night is better than food.

Do not feed the baby because it cries; this may be due to pain, and it is hurtful to fill an infant's stomach at such a time.

Have a rule for feeding the baby, and do not vary from it; without regularity the mother becomes a slave.

More infants' lives are taken by over-feeding than by starvation. Never liken an infant's digestion or diet to your own.

An infant's thirst is not quenched by milk; it needs clean water to drink with regularity.

Plain boiled water, given between feedings, will often aid the digestion and satisfy the child when restless.

Vomiting and diarrhoea are indications that the child is either sick or approaching sickness, and probably needs a physician.

Cholera infantum would be of a rare occurrence if proper attention was always given to the quality and quantity of the food.

A nursing mother who worries, or who is exhausted, or who indulges in excitement, may become a source of danger to her infant.

An infant is a creature of habit, and usually responds to the wish of the mother, if the mother has order in her will.

Cleanliness, as applied to the body, the mouth, the food, the vessels, the clothing, the furniture, the floor, the carpets, the bed, and the atmosphere, should be strictly observed.

—*American Journal of Health, July, 1899.*

#### AGE OF BABIES WALKING.

Prof. Chaumier, having investigated 1220 cases, reports that:

At the age of ten months, of the bottle-fed babies, only 5.6 per cent could walk, whereas 12.7 per cent of all breast-fed babies walked at that age.

At the age of eleven months, 12.3 per cent of the bottle-fed babies walked, but 21 per cent of the breast-fed could walk.

At the age of twelve months, 22 per cent of the bottle-fed babies, and 40 per cent of the breast-fed babies, could walk.

At the age of two years the figures are 91.7 per cent for hand-fed, and 97.8 per cent for breast-fed, babies.

It is also very interesting to compare the numbers of breast-fed and hand-fed babies who begin to walk at each month of age. Among breast-fed babies this number is greatest during the

twelfth month—namely, 18.8 per cent. The percentage slowly rises from the ninth month onwards until the sixteenth month, after which month of age the percentage drops abruptly below that of the eighth month. Among hand-fed children the number of babies beginning to walk at the eleventh month is just equal to that found at the ninth month among breast-fed babies.

At thirteen months of age 69 per cent of all hand-fed, but only 48 per cent of the breast-fed, babies cannot yet walk; at fifteen months the figures are 47 and 23 per cent respectively.

—*Klin. Therap. Wochenschr.*

#### INTUSSUSCEPTION.

Dr. C. K. Morrison reports the case of a child (female) three months old, who for four hours had been suffering from intermittent attacks of crying, accompanied by diarrhoea. The stools were mucoid and tinged with blood. The child had been constipated since birth. When first seen it was sleeping restlessly on its mother's knee, but was roused at intervals of ten or fifteen minutes, apparently with griping pain in the bowels. Paroxysms were ushered in by a shriek. The legs were drawn up, and the child writhed about in agony. At the same time the bowels acted. The child also vomited frequently. No abdominal tumor could be felt. A large injection was tried, apparently without good result. Operation was refused. The patient was kept mildly under the influence of morphine for a week. On the fifth day a sausage-shaped mass could be felt along the course of the ascending colon. During the second week the symptoms remained the same, excepting that vomiting was less frequent. The child emaciated rapidly and progressively. Sixteen days from the date the child was first seen there was passed per rectum a twelve-inch mass of intestine. A year later the baby was perfectly strong and healthy.

The second case (female) was eleven months old, and when first seen had been vomiting constantly for ten days. The child sustained a fall, and the next day suddenly developed violent vomiting and screeching, passing in a short time per rectum a large quantity of blood. A sausage-shaped swelling was distinctly felt in the area of the descending colon, and per rectum a mass could be palpated, extending down to within an inch of the anus. The child died in a few hours. A post-mortem examina-

tion showed the peritoneal cavity to be flooded with intestinal contents. The lesion consisted of an intussusception of the ileum through the ileocaecal valve. This had been forced in through the ascending into the transverse and descending portion of the colon, sigmoid flexure, and rectum. At the splenic flexure the intussusciens had been perforated and the mucous membrane of the ascending colon projected through the opening. The invaginated small intestine reached to within an inch of the anal orifice.

The third case (male) was three years old. On the morning following a dose of castor oil the child was seized with severe abdominal pain, accompanied by diarrhoea and sickness. In twenty-four hours the motions became mucoid and contained a considerable quantity of blood. In the line of the descending colon a sausage-shaped mass could be felt extending from the costal margin to the left iliac fossa. The anus was patulous, but on introducing the finger a body resembling a soft cervix and os uteri could be felt. Large enemata were given, under chloroform, both of water and air; these failed, though they were tried repeatedly. Operation was finally performed three days after the beginning of the symptoms. There were no adhesions, and the invagination was gradually reduced. The splenic flexure had become invaginated into the descending colon. The patient died within twenty-four hours.

The fourth patient (male), five years old, after some imprudence in diet was taken with very severe pain in the bowels and vomiting. Two and a half hours later he was pale and pinched in appearance, with a rapid, weak pulse. Between the intervals of pain he lay exhausted, and as soon as pain came on he cried out and rolled about the bed. Each paroxysm of pain was followed by an excavation of mucus and a little blood. The abdomen on examination was quite flaccid, nor was there tenderness except in the region of the right iliac fossa, where a small, elongated, very tender mass could be felt. Insufflation, massage, and large enemata of hot water were tried in vain. Operation was then performed. The intussusception was of the iliocaecal variety. About a foot of the gut was readily released. The mesentery of the intussusception was then shortened by inserting a few fine silk sutures parallel with the gut, for the purpose of preventing a recurrence. The patient made an uninterrupted recovery.

—*Medical Press and Circular.*

## CONDENSED MILK VERSUS MODIFIED MILK.

Next to the separation of single ingredients from the milk for dietary purposes comes the preparation of substitutes for milk as a whole, in the form of permanent substances, from which may be prepared at any time, by the addition of water, a sort of artificial milk. These substitutes are prepared either by superheating milk in completely filled and closed vessels, or by concentration, with or without the addition of sugar. With regard to super-heated milk, if the containing vessel is not exactly full, the butter separates and becomes rancid. Condensed milk is a well-known Swiss industry, and some of the manufacturers have succeeded in preserving the milk without the aid of sugar—a very great advance in dietetics. Quite recently Allen and Hanbury, of London, claim to have preserved milk in a granular condition; it is as yet too soon to pass upon the worth of this preparation. We must always bear in mind that when the containers of these specimens of preserved milk are once accessible to the air, decomposition occurs much more rapidly than in the case of fresh milk; and it is further questionable whether, if these substances are used alone, *i. e.*, without the association of fresh food-stuffs, they may not in time work more harm than good.

We finally come to the most debatable and interesting subject of the day, that of "modified milk." This study was inaugurated by Liebig in 1865, when he sought to make the composition of cow's milk conform to that of mother's milk. This idea of modification appeared to become dormant for thirty years. In the last few years, however, numerous preparations of modified milk have appeared. Voltmer and Backhus each prepare a milk by partial digestion with trypsin. Voltmer combines milk, water, sugar, etc., and treats the mixture with trypsin. Backhus separates the cream from the skim-milk by the centrifuge, exposes the skim-milk to trypsin until some of the casein is digested; next adds labferment and precipitates the undigested casein, filters and adds enough cream to make the percentages  $3\frac{1}{2}$  per cent for fat and  $\frac{1}{2}$  per cent for casein. Finally, he adds enough milk-sugar to make the proportion 6 per cent. There are other methods, but all agree in reducing the amount of casein and substituting albumose produced by the action of trypsin, and, further, in making the fat and sugar of the cow's milk agree with the proportions found in mother's milk.

Theoretical objection to these forms of modified milk arise from the fact that some of the phosphorus of the casein is forfeited when the latter substance is in part eliminated from the milk. Another objection comes from the fact that the peptone and albumose are not naturally well borne through long periods and tend to cause diarrhoea and anorexia. Other well-known modifications of milk are those of Biedart and Gärtner, in which the milk, diluted for the purpose of attenuating the percentage of casein, has its carbohydrates made up by the addition of cream and milk-sugar. The Lahmann vegetable milk is prepared by adding vegetable oils (almond) to diluted milk.

The author concludes with the statement that for the healthy nursing moderately diluted rich cow's milk is as good as, or better, than any of the above described preparations.

—Prof. Heubner, in *Zeitsch. f. diätetisch und physikalische Therapie*, 1899, III., No. 1.

#### VENEREAL DISEASES.

I would urge that some means be adopted to teach the youth of this country, especially the boys, the horrors of infection with venereal diseases. How few of our boys realize the sufferings which are to follow an infection of gonorrhoea or syphilis, and how many of them will suffer in later life from such infection neglected. The young boy with moral sensibilities blunted or undeveloped, beginning to learn his sexual abilities, having all the passionate desires of that age, who is solicited, or with malice aforethought seeks the embraces of a female suffering from gonorrhoea or syphilis, is truly and sincerely to be pitied. He is absolutely blind to and ignorant of the hell he is plunging himself into for his remaining earthly career. The medical profession see too often the sufferings of those so afflicted, not only in the individual himself, who first contracted the disease, but innocent wives and children of such. I believe that much can be done to relieve this condition, not by licensing houses of prostitution nor by subjecting the prostitutes to ocular examinations and the issuing of certificates thereto by physicians, but by educating the young man, the boy, to a full understanding of a life, every moment of which may be one of suffering, from the various phases of one or the other of these diseases, as a result of one-half hour of so-called pleasure. Teach them the price they have to pay.

Throw away all false modesty. Talk to them plainly. Picture to them in the most forcible language at your command the horrors of it. The father and the physician should teach it. The minister and teacher should be very willing assistants. It should be taught in our colleges. Teach it all the time during adolescence. This I believe to be the surest way of lessening the number of cases suffering from venereal infection.

—Editorial in *The Charlotte Medical Journal*.

#### PATHOLESIA.

Dr. C. F. Buckley, of San Francisco, reports the following cases:

Case I.—I was called upon to treat the 12-year-old daughter of affectionate parents. She is surrounded with all the luxuries of life, very beautiful for her age, and very much petted. She is treated for three months for hip disease with the customary extension appliances, but the malady apparently grows worse. When I first saw her the right leg was in plaster cast. On its removal she drew the leg well up, the heel toward the buttocks. On examination I readily discerned that there was no hip disease, and so proceeded to look for some form or other of spinal disease. The brain appeared to be free from all complication. There was apparently a great deal of general hyperesthesia, for the slightest touch seemed to move her whole body, not unlike a tetanic spasm. The child spoke very little, in two or three days after my first visit she ceased to speak at all, and would not even reply to ordinary questions. I then used some severe embrocations to the spine, and after their use for forty-eight hours speech partially returned, especially in the way of objections to the use of liniments. After careful observation of the general symptoms and their history and cause I questioned myself, can it possibly all be hysteria or patholesia? At any rate I thought I would test the question, and accordingly on my next visit, armed with a fine pointed bistoury, I sat by the child's bedside, spoke confidentially to her, and told her she must "get up today." She looked blandly and blankly at me, but made no reply. I tried gentle persuasion for quite a while to no avail; I then commenced to threaten with the bistoury, displaying it in a very demonstrative way, saying, "unless you get out of bed I shall have to put this knife through your leg," etc. These threats were of no avail until finally suiting the ac-

tion to the word, I gave her a sharp prick with the fine point of the bistoury, at which she jumped clean out of bed and ran without a limp to her astonished mother at the opposite end of a large room. She has never had a return of her patholesia, and is now a happy and respected matron.

CASE II.—A young lady, 30 years old, has been for six months under the care of several medical men of good repute. Though differences of opinion prevailed touching her malady the general weight of opinion favored malignant ulceration of the stomach. It is unnecessary to detail the symptoms that led to this conclusion. When I first saw her the stomach rejected everything, even to a teaspoonful of water. The pupils were markedly uneven, and she complained of severe headache on one side and a pronounced defect of vision on the opposite side. Not to be tedious, the symptoms were such that I concluded I had a case of brain tumor to deal with, and gave a very unfavorable prognosis. One day she took a little water by my suggestion, and I observed the manner in which it was rejected was very peculiar. It seemed that it had gone down about half way the œsophagus, no further, and was then ejected with the force of a hydrant. At this my attention was turned to the morbid will or patholesia, and so I inquired carefully into her history and habits. I learned that she was fond of art, and observed in her room some paintings of merit. I changed her position so that with a duster she could reach the principal one. I then told her that it would be very well for her to amuse herself by dusting this twice a day. This she did. I then advised her to get up and dust the others, assuring her that she need not fear any evil consequences from the trial. In my presence she did as directed, and then took some nourishment to counteract the fatigue. She had forgotten her habit of emesis, retained the light nourishment, and in three weeks from having been a mass of skin-covered bones, she looked a stout, healthy woman in vigorous health.

CASE III.—A nephew of two wealthy maiden aunts is prostrated for several days so as to greatly alarm the old ladies. I see him for the first time about 9 p. m. Neither hand or leg can he move of his own volition, and speaks very little. He has taken no nourishment for days. I learn that he is a young gentleman of decidedly dissipated habits. After careful examination I reach the conclusion that my old friend hysteria or patholesia is the ba-



sis of the symptoms, and accordingly without hesitation told the old ladies and the patient that he could get up and walk as well as I could if he would only make the effort. This only gave offense all round, "So good a boy in his bed of sickness, to be taunted with such conduct. Impossible!" I left the room and the house. At the door I repented—not for emolument sake, but because I felt that I was correct and in the sense of duty had not been very prudent. I returned to the room of the old ladies, and informed them that if they would permit me to deal in my own way with the patient, he would soon rally and be around again. Permission given I retired to the patient's bedroom. Excluding all the household, I informed him how helpless he might become in a very short time if he did not make an effort to throw off the incubus to help himself. Suddenly turning to some object in the room I asked if he could point his right index finger at it. He did; he then lifted his right arm still pointed to the object. Then, off his guard, in obedience to a quick request, he did the same with his left arm. Immediately after he raised one foot, and then another. Soon he sat up in bed, and in a few minutes was walking around the room. While in this attitude I called in the aunts, and the poor old ladies fairly wept with joy. As I write I see a very acrimonious discourse of Christian science; will these disputants look over these pages and observe that the whole subject is one of morbid will or patholesia, and the intelligent medical guidance thereof. I dwell on this because Christian science would probably have no effect on him.

CASE IV.—A young Hebrew gentleman, about 14, is a dreadful sufferer, as he thinks, and his parents have been told, from a painful affection of the heart. He has his right hand constantly under his coat and over the region of his heart. At my request the buttons of his coat are changed so that he cannot keep his hand in the customary position. The painful affection of the heart disappears by this slight ruse, but "spasms," which he has had for about a year, continue. The boy's grandfather observed that these "spasms" always occur in convenient localities,—I never saw one,—and in his opinion the boy knows what is going on at the time of the spasm. I inform the fond parents that if the boy were placed under my care without their guardianship for three months or so the spasms would disappear as the "cardiac" pain had disappeared. This was not done. The boy was taken

to New York, and ultimately Berlin. A distinguished professor at this point had the youth under control quite a while without any perceptible improvement. The idea occurred to him to get the "name" of his disease from the doctor who treated him in California. I wrote "hysteria" on a blank piece of paper. This was duly transmitted, and immediately the professor's success increased with his patient, and the boy returned cured of what he claimed to be genuine epilepsy—one of those other meaningless terms that dishonor medicine. "Spasms" did recur, however, but I believe perceptibly less in force or duration, and always in suitable localities. Of late I have learned that they do not recur. The youth is now about 18.

—*Pacific Medical Journal.*

## BOOK REVIEWS.

---

PRINCIPAL POISONOUS PLANTS OF THE UNITED STATES. Published by the Illinois State Board of Health. 1899.

Through the courtesy of Dr. J. A. Egan, Secretary of the Board, this excellent little volume has come to us. It was compiled by Mr. V. K. Chesnut, a distinguished botanist in the U. S. Department of Agriculture, and is hence authoritative. All the more common shrubs and plants are carefully treated, first from a botanical standpoint—illustrated by excellent drawings—and then from a chemical and toxicological standpoint. Surely every Illinois physician will secure a copy. We cannot promise for others but presume the State will extend its courtesy as long and as far as practicable.

---

AN EPITOME OF THE HISTORY OF MEDICINE. By ROSWELL PARK, A.M., M.D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Based upon a course of lectures delivered in the University of Buffalo. Second Edition. Illustrated with Portraits and other Engravings. 6½ x 9½ inches. Pages xiv-370. Extra Cloth, \$2.00 net. The F. A. Davis Co., Publishers, 1914-16 Cherry Street, Philadelphia. 1899.

We are not surprised that a second edition of this excellent work has been called for within a year of its first appearance. So unique a book and so well and skilfully written was bound to meet prompt acceptance with the profession. We trust when the larger work, to which this may lead, shall appear that it may come from the pen of no less pleasing a writer. Indeed why should not the same author essay the greater task? We detect very few additions, save the chapter on Iatrotheurgic Symbolism which is entirely new.

---

THE PHYSICAL NATURE OF THE CHILD AND HOW TO STUDY IT. By STUART H. ROWE, Ph.D. Published by The Macmillan Company, New York City. 1899. Price, \$1.00.

The title of this book at once indicates a subject in which all physicians are interested. The work is written by a professor in a normal school and is intended primarily for teachers. Its object is to prove and to induce them to prove that the reason for seeming intellectual dullness is very frequently to be found in

physical conditions or surroundings. Practical tests to determine these points are suggested. Adolescence, school hygiene and home care are admirably treated from a medical point of view. A long bibliography of 105 references evinces the author's work, and is a valuable basis for the study of anyone interested in particular lines.

---

ON THE WASTING DISEASES OF INFANTS AND CHILDREN. By EUSTACE SMITH, M.D. Sixth edition. Published by P. Blakiston's Sons & Co., 1012 Walnut Street, Philadelphia. 1899. Price \$2.00.

It is an unusual thing for a book to cover in its various editions, as this one has, a period of more than thirty years. The new edition is specially welcome because it brings into the text all the many advances made in Pediatrics during the last ten years. The high authority of Professor Smith is everywhere recognized, and it is a great satisfaction to have that authority in a form for ready reference and use. As indicated, there have been extensive changes and additions to the new edition. Its greatest value, perhaps, lies in the numerous practical suggestions which it makes as to the medicinal and dietetic treatment of cases which frequently exhaust all our resources.

---

CYCLOPÆDIA OF THE DISEASES OF CHILDREN, MEDICAL AND SURGICAL. The articles are written especially for the work by American, British and Canadian authors. Vol. V. Supplement. Edited by William A. Edwards, M.D. Illustrated. Published by J. B. Lippincott Company, 715 and 717 Market Street, Philadelphia. 1899.

This is indeed a most valuable "supplement" to Keating's Cyclopædia, and while we much regret the death of the man who gave his name to that great system of Pediatric Medicine, we believe the profession are singularly fortunate in his associate and successor. Authors, who had articles in previous volumes, have again contributed and still others have added to the wealth of pediatric knowledge which has appeared in the last few years. Nearly ninety authors have contributed about a hundred different articles, making a large volume of 1300 pages. With E. P. Davis to write on "The Care of the Mother in Pregnancy"; T. M. Rotch, on "Feeding in Infancy and Early Childhood"; Francis Warner, on "Scientific Study of the Mental and Physical Conditions of Childhood"; Cheadle, on "Rheumatism"; Ashby, on "Scrofulosis"; Da Costa, on "Functional Disorders of the Heart";

Pepper, on "Diseases of the Stomach," etc., it will be seen at a glance that the best English speaking authorities have each contributed a part. We can not properly take the space to criticise the individual articles, nor would it be at all proper for us to do so. Publisher and editor have both evidently labored hard to produce a book which shall be a worthy supplement to the volumes which preceded, and together they have achieved a grand success.

---

THE ELECTRO-THERAPEUTIC GUIDE. By WM. F. HOWE, M.D.,  
Ph.D. Lima, Ohio.

We are glad to call the attention of our readers to this little volume, written and published by a man who is not only the president of the National College of Electro-Therapeutics, but is also the publisher of an up-to-date little magazine devoted to the same subjects. The book is intended as a guide to the general practitioner, and is arranged for quick reference. Treatments are outlined, definitions are comprehensive and methods are simple.

---

THIS little volume is a very lucid and succinct exposition of the author's views on renal surgery and is the outcome of an experience covering eighty-seven interventions. The cases operated are related clearly and discriminatingly as to detail, and in themselves form a valuable clinical contribution. The various morbid processes which they illustrate are handled in a manner at once impartial and restrained. Especially interesting are the sections on floating kidney, renal tuberculosis and renal neoplasms. There are fourteen figures in the text, and a really excellent index is appended. To all conversant with Italian we heartily recommend the book, not only for its scientific value, but also for its genuine literary merit.

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A MONTHLY REVIEW OF GYNECOLOGY, OBSTETRICS,  
ABDOMINAL SURGERY, AND THE DISEASES OF CHILDREN.

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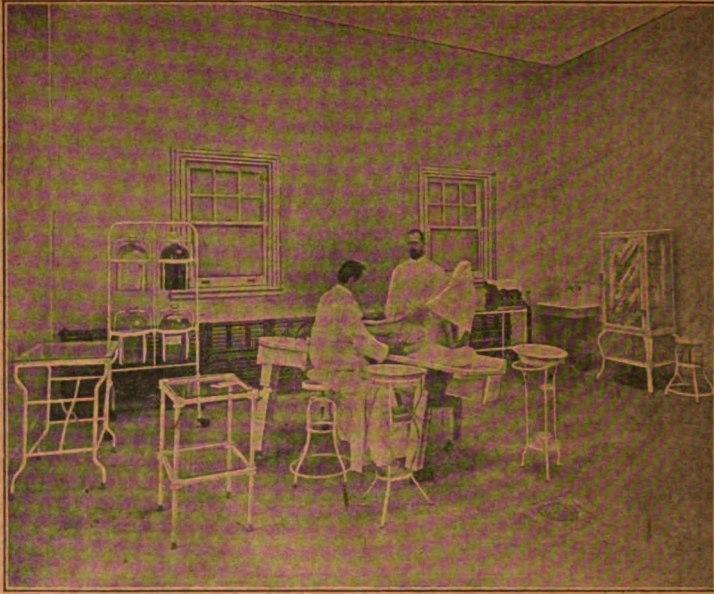
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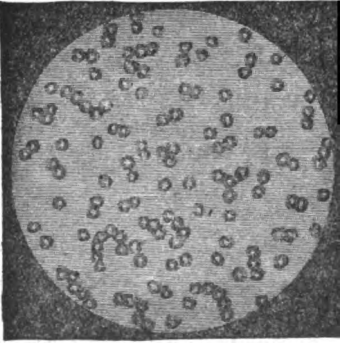
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CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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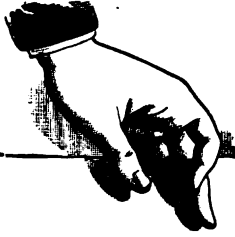
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## LA GRIPPE.—ITS MANIFESTATIONS, COMPLICATIONS AND TREATMENT.

BY W. W. GRUBE, A.M., M.D., OF TOLEDO, O.

Professor of Physiology and Clinical Medicine, Toledo Medical College,  
Toledo, O.

(Abstract from the Journal of the American Medical Association,  
March 25, 1899.)

Professor Grube sees no reason why the intelligent observer need err in his diagnosis of la grippe; he believes that the intensity of the catarrhal symptoms, the great prostration, and tardy convalescence form a typical clinical picture. Though the catarrhal symptoms are usually limited to the respiratory mucous membrane, they are not always so, and in the writer's experience the invasion of the mucous membrane of the digestive tract has been quite frequent. Not alone mucous membrane, but a part or all of the cerebro spinal axis has been invaded.

In many cases the so-called complications are simply an extension and aggravation of the catarrhal or inflammatory condition; thus an extension of the usual inflammatory condition of the throat through the Eustachian tube produces middle-ear complications; the bronchitis, too, may extend and become capillary, or even a pneumonitis may result. So we believe that in the so-called abdominal form with severe gastro-enteric catarrh, it may extend by *contiguity* and inaugurate a general peritonitis. Upon this theory alone can we explain the supervention of a severe general peritonitis in a case under our care, now happily terminating in convalescence.

The patient was a girl of 11 years who had never been seriously ill before. Twenty-four hours after the illness began, she had, besides the usual alarming symptoms of la grippe, a high temperature, wild delirium, constant emesis, frequent and copious discharge of feces and urine. The appropriate remedies were prescribed, the vomiting ceased and she rested; but on the third or fourth day she developed symptoms of peritonitis, abdominal pain, hardness and some tympanites, etc. Calomel was prescribed, twenty grains divided into four powders, one every three hours; also the usual turpentine stupes, morphia to quiet pain, etc. The next day, finding no improvement, but rather aggravated symptoms, green vomit, bowels not moved—a very gloomy prognosis was given, and at the family's request a consulting physician was called, who concurred in diagnosis and prognosis, and had nothing

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more to suggest. On the writer's return in the evening, however, he decided in view of the great mortality of these cases by the routine treatment, to try the local application of a mustard poultice; also, for their germicidal, antiseptic and healing qualities, he gave internally Hydrozone diluted, in frequent doses, alternating with doses of Glycozone. In twenty-four hours there was slight improvement. In forty-eight hours the patient was decidedly better. Improvement continued, and the girl was so well February 21st that she was dismissed as cured.

Perhaps the most common complication in children is the middle-ear inflammation caused by the extension of the pharyngeal catarrh up the Eustachian tube into the tympanum. In the case of a child six months old, recently under our care, we had a middle-ear complication, in which the pain was controlled by the usual methods and by the instillation into the aural canal of a few drops of cocaine solution. After suppuration occurred, however, the canal was cleansed by Hydrozone solution (warm), and a piece of absorbent cotton saturated with Glycozone used as a dressing by inserting it into the canal. As the ear complications sometimes prove very serious, it is gratifying to know that in the above remedies we have a safe, speedy and effectual method of cure. We believe

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also that, if these cases were seen early, by proper treatment the extension and consequent complications might be prevented. In a little girl with severe tonsillitis and pharyngitis we are now spraying the throat with diluted Hydrozone and applying Glycozone with such marked benefit that on this, the third day of treatment, she is almost well.

In concluding Professor Grube states: "I cannot refrain from referring to the case of a prominent city official, who had an unusually severe attack of la grippe. All the structures of the nasal cavities were involved in a severe acute catarrh, which progressed to the stage of suppuration. Enormous quantities of pus were secreted, and the location and intensity of the pain led us to fear involvement of the antrum. However, the free use of Hydrozone solution by spraying, and the application of Glycozone soon cleared up the cavity, and in a few days complete cure resulted."

---

### ACUTE DYSENTERY.

In an editorial article on dysentery, Dr. St. J. V. Graham (Georgia Journal of Medicine and Surgery, July, '99) states that the drug treatment of this disease resolves itself into five or six drugs—calomel, opium, ipecac, tannopine, salines and quinine. If the case is seen early when diarrhoea is present, with a lead-colored or brown tongue, much benefit may be derived from giving calomel  $\frac{1}{4}$  grain every fifteen minutes, until six, eight or ten doses are taken. An acid saline is then administered, after which bile usually begins to flow. This is nature's antiseptic, and no chemical compound or so-called intestinal antiseptic can be compared with it. After this has been kept up for a sufficient time for the exigencies of the case, tannopine should be administered, combined with ipecac and opium, in the form of Dover's powder, or of each drug in simple powder combination. Tannopine should be given in ten or fifteen grain doses every two and one-half or three hours. An ice bag over the belly is preferred by the writer to any form of poultice. If necessary the bowels are irrigated with a bisulphate of quinine solution—one teaspoonful to a quart of cold water. Very little quinine will be absorbed, for it will not stay in long enough. The diet should be carefully adjusted to suit individual peculiarities and the stomach digestion. Stimulants should be used as indicated. The above treatment, which is indicated in acute cases, has proved very successful. In chronic cases, however, an essentially different drug treatment should be resorted to.

---

### THE INFLAMMATORY CONDITION IN PERITONITIS, ETC.

An interesting reference to an extensively prescribed remedy is found in that valuable text-book, "Materia Medica and Therapeutics," by Finley Ellingwood, A.M., M.D., Chicago. The sub-

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stance of the article is to the effect that the influence as a pain reliever of the popular analgesic—Antikamnia—is certainly next to morphine, and no untoward results have obtained from its use, even when given in repeated doses of ten grains (two five-grain tablets). It is especially valuable during the progress of inflammation, and given in pleuritis or peritonitis it certainly abates the inflammatory condition, relieves the pain at once and the diffused soreness shortly, as satisfactorily as opium. It does not derange the stomach or lock up the secretions. It is also of value in pain of a non-inflammatory character, and is a convenient and satisfactory remedy in headaches without regard to cause, if the cerebral circulation be full.

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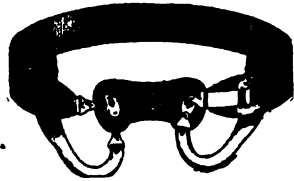
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## THE AFTER TREATMENT OF LA GRIPPE.

Dr. J. S. Moreman, of Louisville (Medical Progress, August, 1899), called attention to the profound anæmia following la grippe, and especially seen in patients who were in robust health before the attack. The extent or gravity of the anæmia is not in proportion to the severity of the acute stage, but is seen more frequently after a mild attack which lasted longer than usually, from two to three weeks. This anæmia is not due so much to the destruction of the red blood corpuscles as to a diminished production, for a microscopical examination of the blood shows that the number to the cubic millimeter is less than normal, although their appearance seems to be healthy. The aim of the treatment should therefore be to increase the number of the red blood cells by proper nourishment, and by the administration of drugs which have a specific effort in this direction. The food should be such as requires the least effort in its digestion, and, at the same time, such as is readily assimilated. The author finds that the best food and iron preparation in this class of cases is ferro-somatose, which is comparatively tasteless and easily digested and assimilated. In the cases reported by Dr. Moreman, there was not only a marked improvement in the anæmia, but also a considerable gain in weight within a short time. Furthermore, ferro-somatose never deranged the digestion, and had no constipating tendency.

## A WANT FELT AND FILLED.

If the doctor had never accomplished anything more definite in his life work than the relief of pain, than amelioration of human suffering, he would not have lived in vain. It is all very well to say that pain is physiological, that it is the cry of the nerve for more blood, yet its continuance cannot be borne by the patient, even by the most heroic Spartan. Long continued pain is dangerous, and while of course we never wish to obtund and remove it so completely as not to be able to ascertain its cause, and remove the same, yet, the best interest of our patient requires from time to time the administration of that which is opposed to pain. Remedies like opium which relieve the pain and at the same time are exhilarating and alluring in their effects are most oft-times dangerous in the remote demoralization which they produce upon our patient. A remedy for the relief of pain which does not tie up the secretions, which carries with it no exaltation and no fascinations which tend in the direction of developing drug habits, is a desideratum. Five-Grain Antikamnia Tablets certainly meet this necessity. Antikamnia is also more prompt and decided in its action in labor than opium, and has none of the unpleasant after-effects. It may be continued in smaller doses to control after-pains, and rather favors than interferes with the secretion of milk.

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